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THE POTENTIAL FOR RESOURCE-BASED INDUSTRIAL DEVELOPMENT IN THE LEAST DEVELOPED COUNTRIES

No. 6

SOMALIA

Prepared by the
Division for Industrial Studies
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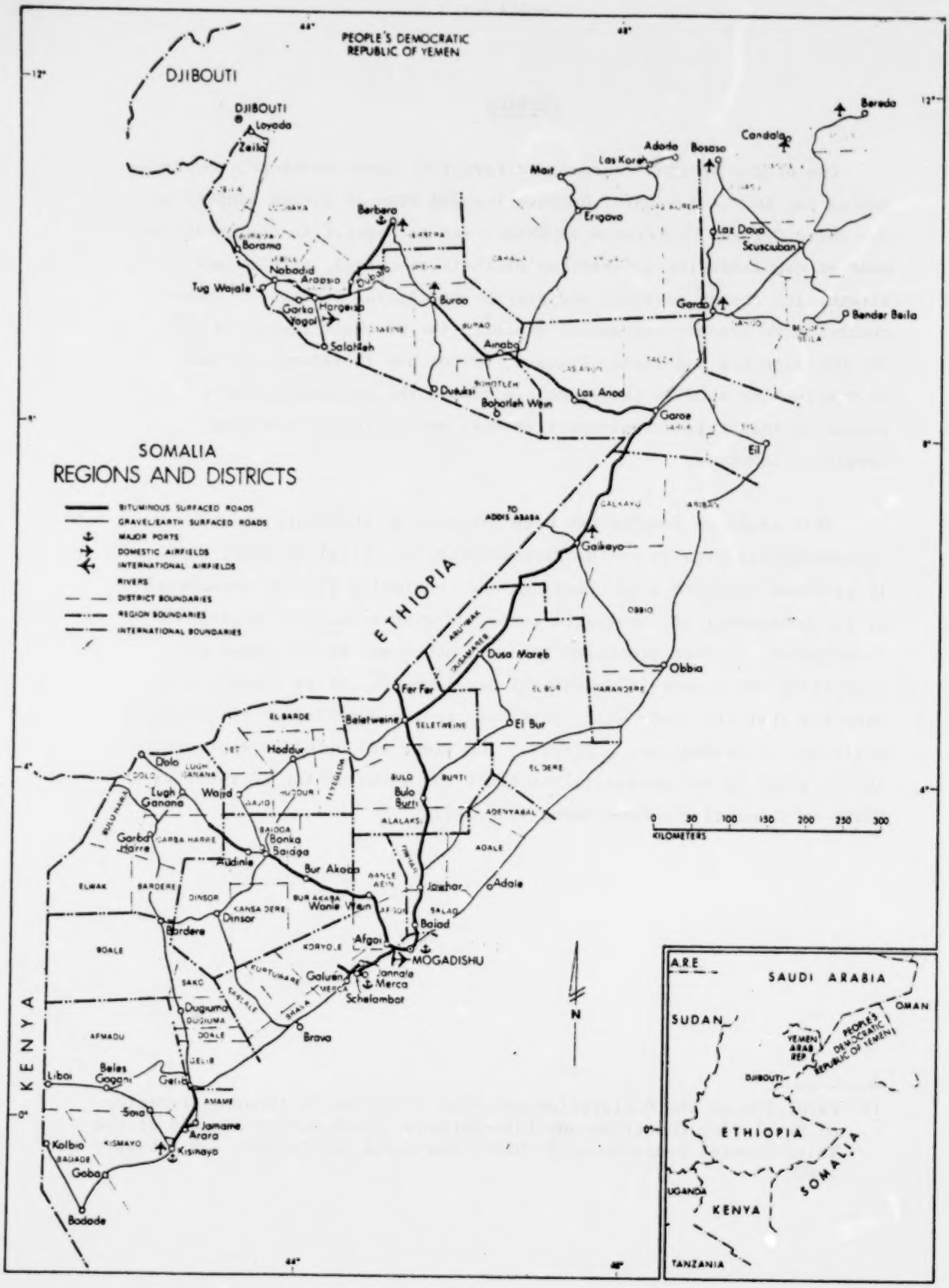
PREFACE

One of the special measures in favour of least developed countries called for in the New Delhi Declaration and Plan of Action adopted at the Third General Conference of UNIDO, was to "assist in the establishment of comprehensive inventories of their resources, particularly alternative energy sources, and prepare industrial surveys of these countries to support endogenous exploitation of their resources".[1/] The Division for Industrial Studies, UNIDO, has therefore, as part of its country studies programme, initiated the preparation of a series of industrial development studies pertaining to the least developed countries.

This study on Somalia has been prepared by the staff and sub-contracted consultants of the Division for Industrial Studies, UNIDO. It is hoped that the study findings and conclusion will be considered by the Government of Somalia in connexion with industrial policy formulation, project promotion work and other activities aimed at supporting the country's industrial development. It is specifically expected that the study will contribute to the development of industrial policies, programmes and projects. The views and opinions expressed in the study do not necessarily reflect the views of the secretariat of UNIDO or those of the Government of Somalia.

1/ Para. 296 of the Declaration and Plan of Action on Industrialization of Developing Countries and International Co-operation adopted at the Third General Conference of UNIDO, New Delhi, 21 January - 9 February 1980.



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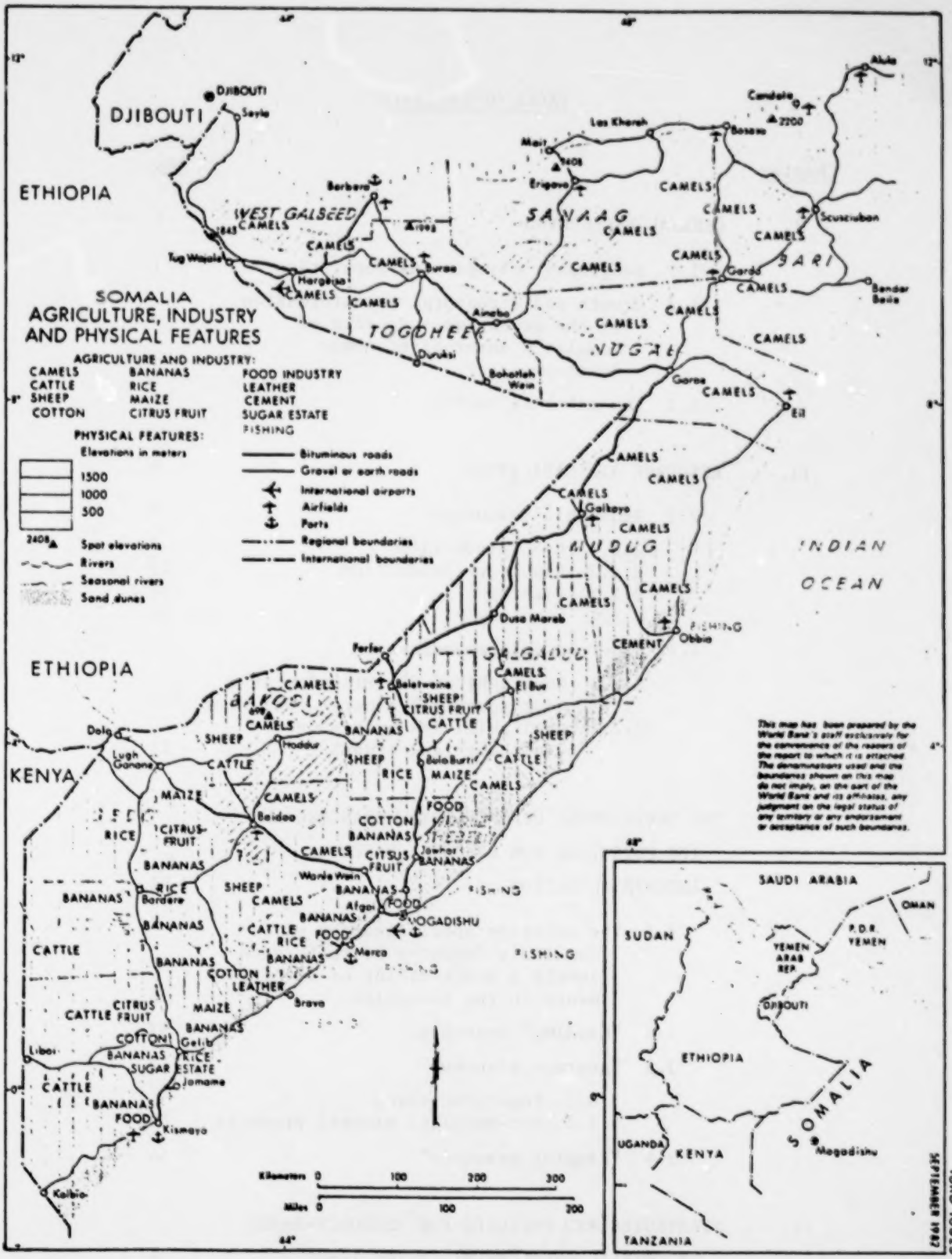

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I.

GENERAL BACKGROUND

1.1. Geography, climate and population

Somalia is located in the north-eastern corner of Africa. It faces the Gulf of Aden and the Indian Ocean on the north and east. In the west and south, it borders on Djibouti, Ethiopia and Kenya. It has an area of 638,600 square kilometres. An estimated 13 per cent of the country is considered to be potentially cultivable, and another 45 per cent is considered suitable for grazing; most of Somalia is between arid and semi-arid. For lack of physical and social infrastructure, only a small proportion of the arable land is currently used for growing crops. Good quality groundwater resources are limited and unevenly distributed throughout the country. Somalia has the longest coastline of any country in Africa and proven fishery resources are large.

Climatically, Somalia may be divided into three regions: -

- the northern and north-western highlands, where the average rainfall exceeds 400 mm per annum in certain areas, these areas enjoy cool and a semi-Mediterranean type of climate;

- the central region of the country and the northern sea coast where it is mainly hot and arid, and the annual average rainfall of the area ranges from 50 to 150mm;

- the south which is relatively higher, and has an equatorial type of climate.

The two main rivers of Somalia, the Shebelli and the Juba, which provide most of the country's usable surface water, flow through the south. It is this inter-riverine area which has the heaviest rainfall; but even here, on the average, the rainfall is less than 600mm annually. Over much of the country, there are two main rainy seasons. The heaviest rain falls from April to June, while the intermittent rain comes from October to December. The

rainfall is so low and irregular that the threat of drought is ever present. According to preliminary results of the 1975 census, Somalia had in that year a population of 3,722 people. Of the total population, nomads accounted for 59 per cent, agriculturists for 22 per cent, and the remaining 19 per cent were engaged in non-agricultural occupations. The population is estimated to have grown at a rate of between 2.5 and 3 per cent a year; this rate of growth would give Somalia a population of somewhat over 4.2 million in 1980.[1/] This figure does not include the refugee population which might add another 1.4 million. The major towns in 1975 were: Mogadiscio, the capital with 400,000, Hergenisa with 70,000, Chisimaio with 70,000, Berbera with 65,000 and Merca, with 60,000 inhabitants. With 31.9 per cent of the total population, the Shabelli River region has the highest populaton density, followed by the north-west with 18.7 per cent, and Juba River with 17.5 per cent.

As to the regional distribution of industry, the predominant number of manufacturing establishments are in Mogadiscio, i.e. 1,501 establishments or 49.3 per cent in 1978. Hargeisa was second, with 408 establishments or 13.4 per cent, and Chisimaio then came third with 133 establishments or 4.4 per cent in 1978. So Mogadiscio, Hargeisa and Chisimaio had 67.1 per cent of the total number of manufacturing establishments.

1.2. Growth and structural transformation in the Seventies - aspects of Somalia's internal economic development

Somalia's real GDP grew at an annual average rate of 3.7 per cent between 1970 and 1980.[2/] This figure comes very close to the average for low income countries (excluding China and India) in this period which was 3.5 per cent.[3/] In 1980, its GDP amounted to 1373.7 million of US dollars. This figure, however, should not be considered to be very realistic, because the then official exchange rate of US $1 = 6.295 SoSh was heavily overvalued. Applying the more realistic exchange rate of US $1 = 15.22 SoSh, which has been effective since 1 July 1982, yields an income per capita of US $155.62.

Comparing this to the average of US $230 per capita for the low income countries in 1980, shows that Somalia's GDP per capita ranks relatively low within the LLDC group.[4/]

One of the most characteristic aspects of economic development is structural change, which is reflected in changing shares of economic sectors in the total economic activity. As can be calculated from Table 1, the most dynamic sectors in terms of growth rates in the seventies were utilities (13.1 per cent), manufacturing (6.2 per cent), construction (6.1 per cent) and services (4.6 per cent). The growth rates of agriculture (1.7 per cent) and mining and quarrying were lagging behind.

Consequently, utilities, manufacturing, construction and services increased their shares in GDP. Yet the respective share of agriculture, which was the largest sector until the mid-sixties now ranks second (31.84 per cent) behind the services sector (45.58 per cent).[5/] These results of the structural transformation process in Somalia during the seventies make some aspects of its development pattern deviant from the average development pattern of low income countries (as calculated by the World Bank).[6/] Although Somalia's manufacturing share (9.61 per cent) comes very close to the (low income countries) group average (10 per cent), the shares of industry (22.57 per cent) and especially the services sector (45.58 per cent) are higher in Somalia than the group averages (17 per cent and 38 per cent, respectively). Somalia's agricultural share (31.84 per cent) clearly lags behind.[7/]

Another way of looking at the relative performance of Somalia's manufacturing sector is to calculate the country's "Relative Degree of Industrialization". (RDI) For this purpose, the "typical" value added in the manufacturing sector (in constant 1975 US $) in the course of the economic development of a small, resource poor developing country was estimated. This was done using a log-linear multiple regression equation that had manufacturing value added as the dependent variable, and GDP per capita and population as the explanatory variables. The RDI of a country was then calculated as the ratio of the actual to the estimated ("average")

Table 1. GDP by industrial origin - at factor cost, 1960 to 1980

(in millions of 1975 US dollars)

		AGRICULTURE		MIN. & QUARR.		MANUFACTURING		UTILITIES		CONSTRUCTION		SERVICES		G D P	
SOMALIA	1960	151.1		27.9		9.2		4.4		16.4		121.5		330.3	
	1961	164.1		25.6		8.3		4.1		15.1		131.5		348.7	
	1962	170.1		25.9		8.4		4.2		15.2		139.8		363.5	
	1963	182.8		25.3		8.1		4.1		14.9		142.2		377.3	
	1964	156.7		25.2		7.1		3.5		12.8		130.1		335.4	
	1965	143.0		19.3		6.2		3.2		14.1		126.8		312.5	
	1966	159.5		23.6		13.4		3.3		18.2		139.1		357.2	
	1967	156.1		24.1		17.2		3.4		18.7		158.1		377.5	
	1968	149.8		25.4		19.2		3.3		20.4		161.9		380.0	
	1969	127.1		21.4		21.6		2.6		16.9		139.2		328.8	
	1970	135.5		23.4		26.6		2.6		16.9		146.6		351.7	
	1971	139.8		23.8		32.5		5.3		22.1		155.4		379.0	
	1972	139.7		24.7		36.4		5.6		22.7		176.5		405.5	
	1973	140.5		26.5		40.5		6.2		24.3		189.1		427.0	
	1974	142.3		23.1		41.0		6.9		25.8		199.4		438.5	
	1975	146.0	1.7%	24.3	1.0%	43.4	6.2%	7.4	13.1%	27.5	6.1%	205.1		453.7	3.7%
	1976	155.6		25.9		45.6		7.8		29.2		216.3		480.4	
	1977	152.1		25.7		45.1		7.8		28.4		212.9		472.0	
	1978	155.8		25.8		45.8		7.9		30.5		225.5		491.3	
	1979	157.4		25.8		46.2		8.3		31.8		228.4		498.1	
	1980	160.6		25.9		48.5		8.9		30.6		229.9		504.4	

manufacturing value added.[8] In Somalia's case, the RDI increased from 0.94 in 1970 to 1.05 in 1979. This shows some success in Somalia's industrialization efforts, but still indicates that the country's development path in manufacturing is typical of countries with comparable per capita income and population size.

Apart from ambiguities (which arise from the different data sets) regarding the share of agriculture and also neglecting the general low quality of the available statistical information, the high share of GNP contributed by the services sector - which even exceeds agriculture's share - is a noteworthy result of the structural transformation of Somalia in the seventies. This development may be attributed to various causes. The first cause is the substantial growth of government services in the seventies. Although a great part of this expansion reflects an increased amount of "real" services like increases related to the expansion of public investment or like the efforts to solve the refugee problem, part of the expansion of government services might just reflect a growing "overemployment" in the public sector, resulting from a policy of guaranteed employment to school leavers. Likewise, the extension of public sector ownership and control in the economy following the 1969 revolution might have created "additional needs" for services such as administration, co-ordination and planning. However, this increase in services might not necessarily have contributed to the growth of economic welfare in the country as a whole. On the other hand it should be emphasized that Somalia's social indicators improved in the 1970-1980 period, most outstanding being the increase of the adult literacy rate from 5.0 per cent in 1970 to 60 per cent in 1977 as a result of the literacy campaign of 1974.[9]

The second major cause of the increased services share is the growth of the private services sector. In 1976, the Somalian "franco valuta" system emerged. It automatically granted import licences to Somalia importers for foreign currency which they had obtained from abroad. Meant only as an incentive for Somalis working abroad to remit their earnings to their home country, the system at the same time stimulated private trading activity. This second explanation, however, is not as important as the explanation of the growing services mentioned in the preceding paragraph. This is shown by the real growth rate of the services sector, which dropped from 4.6 per cent per annum in the period 1970-1975 to 2.3 per cent between 1975-1980 (c.f. Table 1).

1.3. The external sector

Having already analysed various aspects of the internal structural transformation of Somalia in the seventies, this introductory chapter will be concluded with a look at the development of the external sector. The central focus of this study is on aspects of industrialization, so the analysis in the following paragraphs will be mainly centered on trade in manufactured goods.

In doing so, however, it will cover only a very small fraction of Somali exports. The countries' main source of foreign exchange is live animals. Its share in total foreign earnings grew from 64.7 per cent in 1975 to 90.8 per cent in 1981.[10/] This growth has to be partly attributed to the favourable development of the export prices of this commodity; the unit price index for livestock exports rose from 100 in 1974 to 220 in 1979, but dropped to (a still favourable) 185 in 1980.[11/] The major export crop of Somalia is bananas. Its percentage of total foreign exchange earnings, however, fell from 14.4 per cent in 1975 to 3.6 per cent in 1981.[12/]

On the import side, increasing shares of the total import bill were accounted for by food imports (from 24.1 per cent in 1975 to 30.5 per cent in 1980) and by imports of capital goods (from 31.7 per cent in 1975 to 35.3 per cent in 1980), whereas the share of intermediate goods fell (from 26.0 per cent in 1975 to 16.4 per cent in 1980).[13/]

Table 2 gives a picture of the changing composition of Somalia's trade in the seventies with respect to the level of processing. As to exports, the dominant class "A" goods further increased their share, reflecing the growing importance of livestock exports, whereas the falling share of class "C" goods reflects the drop in banana exports. Taken together the share of processed goods in total exports fell from 10 per cent in 1970 to slightly more than 3 per cent in 1979. On the import side, we find a marked drop of the relative importance of class "B" imports and a further rise of the weight of class "D" imports, making them the predominant import category at the end of the seventies. More revealing than the relative shares of total import are the different import growth rates. Whereas in the first half of the seventies all goods categories showed positive growth rates, in the 1975-1979 period the imports of goods for further processing (classes "A" and "B") declined; at the same time imports of goods for final use (classes "C" and "D") continued to grow at high rates.

Somalia

TABLE 2. SHARES OF EXPORTS AND IMPORTS CLASSIFIED ACCORDING TO LEVEL OF PROCESSING 1970 AND 1979 AND TREND GROWTH RATES 1970-1975 AND 1975-1979

CLASSES	EXPORTS				IMPORTS			
	CLASS SHARE OF TOTAL (PERCENTAGE)		CLASS GROWTH RATE (PERCENTAGE)		CLASS SHARE OF TOTAL (PERCENTAGE)		CLASS GROWTH RATE (PERCENTAGE)	
	1970	1979	1970-1975	1975-1979	1970	1979	1970-1975	1975-1979
A : Non-processed goods for further processing	53.02	88.30	29.67	14.64	6.93	6.38	31.46	-14.51
B : Processed goods for further processing	0.08	0.03	-9.16	-38.08	23.43	7.51	25.03	-6.52
C : Non-processed goods for final use	37.02	8.32	7.31	-18.24	2.65	2.28	6.97	25.80
D : Processed goods for final use	9.88	3.35	22.28	-27.28	66.98	83.83	33.04	20.82
Sum of classes: A+B+C+D in 1000 current US$		1970 31386		1979 111785		1970 39919		1979 226314
Total trade SITC 0-9 in 1000 current US$		31408		111814		45104		248732

SOURCE: UNIDO data base;Information supplied by the United Nations Statistical Office,with estimates by the UNIDO Secretariat.

Note:Calculations are based on current us dollar prices.
Sum of classes and Total trade figures should be identical.Discrepancies or zero values are due to lack of countrys" trade reporting in general,but especially at the 3-,4- and 5-digit SITC level.

II. RESOURCE AVAILABILITIES

The short look at Somalia's export structure in the preceding chapter pointed to the need to strengthen the competitiveness of its branches processing for export or to establish such branches. This is especially true for three reasons: 1) The general vulnerability of primary exports with respect to fluctuating world market prices; 2) their low linkage potential as compared to manufactures; and 3) the protectionist attitudes of especially the EEC countries regarding their own agricultural sectors. How this can be achieved will be the main topics of Chapters III and IV. However, this Chapter will first give the necessary overview of the available Somali resources which could be used as a basis for industrialization efforts of that kind.

2.1. Renewable resources

In Somalia 37,000,000 hectares, or 58 per cent of the total area, are suitable for crop and grazing. And of these, only 8,150,000 hectares or 12.8 per cent are suitable for crop production.

Table 3: Land-use potential

	Area (hectares)	Percentage of total area
Suitable for crops	8,150,000	12.8
Suitable for grazing	28,850,000	45.2
Non-agricultural land	26,765,000	42.0
Total	63,765,000	100.0

Source: Ministry of Agriculture, Mogadiscio. (Agriculture Sector Draft Plan 1982-1986).

2.1.1. Crop production

At present nearly 540,000 hectares of land are cultivated under rain-fed conditions. There are two million hectares of land which have the quality of soil and necessary rainfall to be considered as suitable for farming. Ground

water surveys indicate that some regions have good potential for ground water development, and even for irrigation. However, very few wells exist, and in most cases no data is available on installation, soil strata, water quantity and quality, nor the long-term supply of ground water. The first action necessary for the economic use of ground water resources is an exploratory drilling program for the areas defined as having excellent or good potentials. Some detailed work should be undertaken in the most promising hydrological regions, i.e. the alluvial sub-regions of the Wadi Gohel system, the Erigavo-Gardo system and Togder-wadi Nogal system.

As far as irrigated farming is concerned, bananas are the most important cash crop. Sorghum is the main crop grown on rain-fed areas. Maize and sorghum are the two staple crops which are produced almost entirely by small farmers mainly for their own subsistence. Sugar cane, cotton and oilseeds are also important cash crops.

Large parts of the population including nomads as well as settled farmers produce mainly for their own consumption, and then market only the small surplus which they may have in excess of their own family needs. The agriculture practices followed by small farmers have remained very traditional, and in the absence of the use of more modern techniques, productivity is low.

Keeping in view the small size of holdings, natural calamities, the availability of animal power and the traditional way of farming, the immediate needs are:

- to introduce animal-operated improved implements which would be suited to local conditions, coupled with added facilities for irrigation and/or improvements of the existing ones respectively;
- the use of better yielding and disease-resisting seeds, guidance on the use of fertilizers;
- the use of manure and plant protection measures.

This obviously points to the need for strengthening agricultural extension services.

Table 4: Agricultural Production, 1970-79
(thousand metric tons)

Year	Food crops	Cash crops	Fruits	Vegetables
1970	294	511	196	29
1971	239	482	273	23
1972	276	448	365	27
1973	171	459	273	31
1974	115	418	248	33
1975	253	424	187	25
1976	263	396	219	26
1977	274	357	201	27
1978	271	376	219	27
1979	272	396	238	27

Source: Ministry of Agriculture, Mogadiscio (Agriculture Sector Draft Plan 1982-1986).

As Table 4 shows, agricultural production was basically stagnating during the seventies, with production fluctuating from year to year. This dissatisfactory record, which certainly should not be judged disregarding Somalia's specific geographic and climatic conditions, seems on the other hand to be partially attributable to the Government's pricing policies, which aim at keeping prices of essential agricultural products low to the benefit of the urban consumer.

Table 5 shows that for six important agricultural crops the real prices received by producers almost consistently decreased in the 1976-1981 period. Combining this with the widely stagnating production indices in this period, as shown in Table 4, indicates that both the incentives to farmers (price effect) and their abilities to invert (income effect) have decreased in the second half of the seventies, leading to the hardly satisfying record of agriculture in this period.

Table 5: Indices of Real Producer Prices for Selected Crops, 1/ 1976-1981
(1975 = 100)

	1976	1977	1978	1979	1980	19812/
Bananas	117.0	116.6	106.0	85.6	58.7	84.5
Maize	95.7	108.1	98.3	79.4	79.7	62.0
Sorghum (white)	95.7	108.4	98.3	79.4	79.7	55.1
Rice	87.7	79.3	72.1	58.2	36.5	-
Cotton	105.2	103.1	86.4	75.7	54.8	44.3
Sesame	87.7	95.2	86.5	69.9	54.8	57.0

Source: The World Bank, Report No. 408 la-SO, "Somalia Policy Measures for Rehabilitation and Growth, Washington, D.C., 6 May 1983, p. 11.

1/ In the absence of a price index of the bundle of commodities purchased by the rural population, official producer prices deflated by Mogadishu Consumer Price Index.

2/ From July 1981.

As to the potential for Resource Based Industrialization (RBI), a very general conclusion is that with stagnating agricultural production and growing population the agricultural production per capita, the RBI-potential naturally decreased.

The National Planning Ministry conducted a study of demand for important agriculture commodities up to 1986, some results of which are shown in Table 6.

According to these figures, it would not be possible to attain self-sufficiency even in respect of the main commodities, except in the case of sugar.

Table 6: Production and demand for selected agricultural commodities
(thousand tons)

Commodity	1981			1986		
	Production	Demand	Deficit/ Surplus	Production	Demand	Deficit/ Surplus
Surgham	175	225	-80	275	292	-17
Maize	110	137	-27	150	157	-7
Rice	12	71	-59	20	90	-70
Oilseeds	32	141	-109	46	177	-131
Sugar	50	73	-23	98	88	+10

Source: National Planning Ministry, Mogadiscio.

For commodities consumed as staple foods, the deficit is projected to decrease. Yet it would be larger in 1986 for rice and oilseeds, which are also important components of the diet of the people. In other words, agriculture is not expected to provide increased opportunities to develop industry based on locally produced surpluses. Efforts should not be spared, however, to promote feasible industrial activities based on increased demand for processed agricultural commodities. There are many products which could be produced from local raw materials,[14/] if sufficient markets could be found to ensure their economic viability.

However, even this not too optimistic outlook will be difficult to achieve in reality. The growth rates implied in the projections appear to be hardly attainable in view of the historical record (c.f. Table 5). It should be emphasized that increases in the funds and resources channelled into agriculture are pre-conditions in a double sense for the further development of the agro-processing sector in Somalia:

- first, to secure the continuous and growing supply of agricultural inputs; and
- second, to prevent scarce foreign exchange from being spent increasingly for food imports in compensation for a growing food deficit instead of the importation of capital goods necessary for the erection of these industries.

There remain severe constraints to the development of crop production:

- restrictively small sizes of farms;
- the high percentage of nomadic population;
- excessive dependence on uncertain rain for irrigation;
- inadequate investment in farming;
- failure of the farmers to invest and to adopt new methods and techniques of farming, including mechanized farming; and
- inadequate availability of manpower for extension services.

There is, however, scope for the introduction of improved animal-driven implements and for the substantial expansion of activities such as the BAI project in Baidao. At the same time, a study should be undertaken of similar developments which are being undertaken in countries such as China, India, Pakistan, Sri Lanka and others. The mechanical and foundry shop established at Mogadiscio could be more extensively utilized to develop prototypes and even for the introduction of production of selected implements on a commercial scale.

2.1.2. Livestock production

Livestock production is the most important subsector in Somalia's agriculture and in the country's economy as a whole, being both the major source of foreign exchange and income as well as the main generator of employment. Beyond that, livestock production has important forward linkages to the industrial sector because it provides inputs for the meat, hides and skins processing branches. According to United Nations Food and Agriculture Organization (FAO) norms, cattle = 0.8 unit of animal, camel = 1.0 unit and sheep and goat = 0.1 unit each. In accordance with the norm, the livestock population of Somalia in 1975 was 11.7 million animal units.

The traditional system of rearing livestock is mainly composed of nomadic pastoralism. However, a significant amount is reared by settled farmers and a marginal amount by specialized livestock production by urban dwellers. In addition, the Government has launched specialized livestock enterprises in the form of ranches, specialized dairy farms and cattle-feed lots.

About 60 per cent of the population is entirely dependent on livestock, and another 20 per cent supplement their income from this source. The share of livestock in exports of the country rose to almost 90 per cent in 1978, but dropped to 78 per cent in 1980. The most important customer is Saudi Arabia, which in 1980 purchased 90 per cent of Somalia's exports of live animals, which amounted to 69 per cent of the country's total exports. Despite its predominant weight in the Somali economy, Table 7 shows that the share of the livestock subsector in total investment has never been a major one.

Table 7: Planned sectoral investment, 1968-81
(So.Sh. million)

Plan period	Total investment	Investment on livestock	Percentage of share
1968-70	705.0	45.9	6.9
1971-73	999.5	59.4	5.9
1974-78	3,868.4	189.5	4.9
1979-81	7,103.6	630.8	8.9

Source: State Planning Commission, Mogadiscio.

The basic requirement of the livestock industry is land. The land in Somalia is predominantly arid and with limited scope for improvement; nevertheless it has a certain quality which supports livestock rearing. One of the main problems has been overgrazing. In all but a few areas, however, the condition of range land recovered well during the following years of good rainfall. This is also true for problems caused by lack of seeding and the drought of the mid-1970s. A failure of "DER" rains (October to December) in 1979 and delayed "GU" rains (April to June) in 1980 caused a setback, though relatively minor.

There have been two significant changes in the availability of land. First, the National Range Agency had achieved by 1979 a degree of management control over 140 grazing reserves of various types. Second, greater use is being made of the rich but tsetse-infested riverbank grazing than before. With the start of the Tsetse Survey and Control Project, the effective use of more land for livestock rearing is increasing.

It is assumed in the 1982-86 Plan that Somalia will retain its share of exports of cattle, sheep and goats in its traditional markets, but that exports of camels will be rather uncertain since the consumption of camel meat is being progressively replaced by frozen beef and mutton.

This should enhance the chances for Somalia to capture demand for beef products, which would have a boosting effect on the domestic beef industry. There is a possibility of increasing exports at a modest rate during 1982-86 as the availability of stock increases due to better disease control

and other development efforts. It should be possible to increase exports of sheep and goats at an average annual rate of 3 per cent, and cattle at 5 per cent. This would mean that during 1982-86 period, exports of cattle might go up by 16,000 and those of sheep and goats by 183,000.

Higher yields from cattle, sheep and goats depends upon the quality and quantity of feeds. Potential resources of feed with high nutritional value are: (a) improved pastures; (b) fodder crops; (c) fodder residues; (d) agro-industrial by-products; (e) feed grains; (f) oil seeds; and (g) animal by-products.

Improved pastures are feasible only in river valleys, but there are more important crops which need to be produced in these areas. However, considerable work still needs to be done for the improvement of present pastures. There are no surplus cereals grown in Somalia.

The quantity of available brans during 1982-86 will depend upon further increases in the consumption of cereals. There are many small-scale oil mills operating in the private sector. Information about their crushing capacity and actual quantity of oil cake produced is not readily available. There is a vegetable oil plant operated by the Ministry of Industry. It has capacity to crush 20 tons of oil seeds per day. This plant produces oil cakes suitable for animal feeds. The smaller establishments are planned to be brought together into a co-operative society.

Molasses constitutes another important ingredient of cattle feed. The Jowhar Sugar Factory produces 12,500 tons of molasses per year which is used for the manufacture of alcohol. The Juba Sugar Factory was expected to produce 20,000 tons of molasses in 1980 and 50,000 tons by 1983. Its production of molasses is for export and for cattle feed.

There are by-products from the meat processing industry which can be used for feeding such as: 110 tons of meat and bone meal from the Kismayu Meat Factory, 600 tons of crushed bones from the Mogadiscio Slaughter House and from SOPRAL and meat, bone and blood meals from the Mogadiscio Plant. These are of immense use in the production of poultry feed. There is considerable scope to expand the availability of fish as raw material for the production of poultry feed.

The feed plant at Mogadiscio, which makes available mixed feeds for government poultry and dairy farms, has experienced decline in its production from 1,500 tons to 1,200 tons over the last three years (poultry feed 950 tons and cattle feed 250 tons). There is an element of subsidy of approximately 25 per cent in the pricing of the feeds. Expansion of poultry production is planned during 1982-86, but the expansion will depend largely upon the availability of feed. Import of maize constitutes about 40 per cent of the feed produced, an issue requiring consideration.

In short, raw materials available for feeds during 1977 were around 8,200 tons of bran, 2,00 tons of oilseed cakes, 100 tons of meat and bone meal, 600 tons of crushed bones and 12,500 tons of molasses. In 1983, the requirements are expected to be at least 17,000 tons of bran, 7,600 tons of oilseed cakes and 50,000 tons of molasses.

The concentrates for cattle feed are not in great demand. Therefore, if new feed mills are set up, they will operate only part time. Thorough investigations would be necessary before additional investments are made in this industry during the next plan period. The Plan includes a project for a feed mill and feed lots with a total investment of So.Sh. 4.4 million, of which the equivalent of So.Sh. 2.7 million will be needed in the form of foreign exchange. It includes development of optimum systems for the utilization of crop residues and by-products and also the determination of the economic feasibility of intensive feeding systems for beef production. On completion, the project would have a capacity of 4,800 tons of mixed feed.

The Plan also provides for a number of additional projects aimed at the expansion of agricultural output. For development of poultry, a modern poultry farm is to be established near Mogadiscio with a total investment of So.Sh. 24.93 million to produce 10 million eggs per year. Another poultry farm at Hargeisa will be established at an estimated cost of So.Sh. 5.0 million, of which So.Sh. 4.2 million will be in foreign exchange. The farm should reach the target supply of 5 million eggs in 1984. The poultry farm near Mogadiscio is to be expanded to produce 5 million eggs per annum. The cost of the expansion is estimated at So.Sh. 8.4 million, of which So.Sh. 2.5 million will be in foreign exchange to be met from the committed USAID grant.

Another important addition is the extension of the ROMSOMA project at a total cost of So.Sh. 406.98 million, of which So.Sh. 172.54 will be in foreign exchange. A commercial credit of So.Sh. 100 million is already provided in the contract with Romagrimex. At full development the project will produce 20,000 fattened cattle, 90,000 fattened sheep, 2.5 million broilers and 30 million eggs annually. For the implementation of all these proposals (for supply of broilers and eggs), substantial expansion in the field of poultry feed manufacture will be necessary during the 1982-86 period.

It is important to realize, however, that locally-produced feeds are more suitable for cattle than they are for poultry. For developing a satisfactory quality of poultry feed, food grains will have to be imported or fishing resources will have to be utilized. As long as the indigenous production of grains does not provide a surplus for poultry feed production and the fishing industry remains stagnate, there does not seem to be much potential in expanding poultry production.

So, in view of the limited prospects for increases in domestic poultry feed production, any plans for further large-scale expansion of poultry production should be based on careful cost-benefit analysis. The opportunity cost of the foreign exchange required for the probable increase of poultry feed imports should also be carefully assessed. And in respect to employment creation, the spending of foreign exchange on feed imports which are aimed at keeping large-scale, possibly highly mechanized poultry farms in operation might not be the most efficient policy either.

2.1.3. Fishing

It is estimted that moderate concentrations of fish and shellfish occur along the Somali Coast and that the greatest abundance is found in the Gulf of Aden. The estimates of potential annual catches for the major fish groups are given in Table 8.

Table 8: Estimates of fish resources - Annual potentials

Large pelagic species	8,000 tons
Small pelagic species	100,000 tons
Large demersal species	40,000 tons
Shark and rays	30,000 tons
Spiny lobsters	2,000 tons
Shrimps	400 tons
Mesoplagic species	Large but not known
Turtles	Not known
Cephalopods	Not known

Source: Ministry of Fisheries, Mogadiscio.

Hitherto, fishing has not figured predominantly in the economy of Somalia. Production has ranged from 4,000 to 11,000 tons per annum, and the value of fish hs been less than 2 per cent of GNP. Only about 3 per cent of the population is estimated to derive at least part of their livelihood from fishing and related activities. The remoteness and isolation of many of the fishing villages, lack of transportation and marketing facilities have inhibited development.

In addition to the four main coastal towns (Mogadiscio, Berbera, Kismayu and Merca), there are 28 small coastal towns and fishing villages with an estimated total population of 90,000, many of whom depend upon fishing as their main source of income. They are organized in 18 co-operative societies. Fifteen thousand ex-nomads were settled in these towns and villages, of whom 13,700 in these settlements are fishermen, boat repairers, mechanics and fish processing operators.

Table 9: Fish Production in Somalia
(Figures in tons)

Area	1974	1975	1976	1977	1978	Remarks
North Coast	1,947	3,500	3,040	3,355	1,778	The weights
East Coast	2,000	4,400	4,000	1,923	1,770	mentioned
Off Shore	2,050	2,450	4,350	4,550	225	are of
Total	5,997	10,350	11,390	9,828	3,903	landed whole fish

Source: Ministry of Fisheries, Mogadiscio

As can be seen from Table 9, there was a marked decline in fish production in 1978 due to (a) dissolution of Russian partnership in 1977 and departure of the Russian fleet, and (b) the decline in in-shore artisanal catches, caused by a lack of proper maintenance facilities which led to more and more boats becoming unservicable. Many fishermen reverted to their old "houris" (2,000 boats) which, too, were at the end of their working life. The fleet of 600 artisanal vessels became significantly inoperative, and by 1979 only 30 per cent of such vessels were functioning. Thus, prospects for increasing the fish supplied by the small vessels will depend on the establishment of a reliable system for the supply of boats and financial credit assistance to fishermen. Controlled distribution of fishing gear (nets, floats, cardage, hooks, etc.) should also be supplemented by encouraging a revival of private trade at wholesale and retail levels.

In 1980, fish production had recovered, but still fell substantially short of the estimated annual potentials shown in Table 8.

Table 10: Fish production - by type of landings
(figures in tons)

Landing	1974	1975	1976	1977	1978	1979	1980
Artisanal	3,947	7,900	7,040	5,278	3,284	4,000	4,000
Industrial fish	1,350	1,500	3,400	3,400	235	3,080	8,530
Crustaceans	680	950	950	1,150	20	800	1,800

Source: Five-Year Development Plan, Ministry of National Planning, Mogadiscio, August 1981.

During the recent past, certain progress in fish catches through the use of trawlers has been made. At present, the licensed vessels are mostly Italian. Seven companies are operating, and under their terms of license, 20 per cent of the catch is to be paid to the Somali Government in cash or kind. Until now much of the catch has been exported. Apart from the licensed vessels, the Somali Government owns a fleet of nine Yugoslavia-built 23-meter trawlers and two Australian 28-meter shrimp trawlers. Other 66-meter vessels are on order by the Somali-Italian SOMEC joint venture. The nationally-owned vessels have not yet contributed significantly to total production. (Three of the Yugoslav vessels have recently been included in a joint venture with a Greek company).

With regard to the development of deep-sea fisheries, the main constraints are:

- the acute shortage of berthing space for trawlers and of other infrastructure facilities;
- the inadequacy of on-shore fish freezing cold storage and ice plants to facilitate the shipment of catches intended for export;
- the lack of vessel maintenance facilities.

Increased efforts should be undertaken to overcome the constraints.

2.1.4. Forestry

About 13.8 per cent of the total land area is covered by forests, of which 2.5 million hectares is described as dense savannah and 0.1 million hectares are degraded high forest. Forestry resources are the main source of fuel to the Somali people. The appropriate development of forestry resources is essential to the maintenance of a proper balance between the economic requirements and long-term environmental considerations. The overall strategy during the 1980s is to expand forests in the country.

The main forest products are fuel wood for cooking (mainly in rural areas), wood for charcoal production for cooking (mainly in urban areas), round wood, small-size poles, brush bundles for house and hut construction, frankincense, myrrh, gum arabic and a variety of nuts, seeds and medicinal plants. Charcoal sales increased from 50,000 tons in 1976 to around 80,000 tons in 1980. On the other hand, exports of three valuable gums fell from 1,590 tons in 1976 to only 394 tons in 1978. This decline in gum exports was mainly due to the deterioration of trees as a result of past over-exploitation and lack of regeneration.

Nearly 320 skilled workers and technically trained persons are employed on a permanent basis in institutionalized activities in the forestry sector, and another 5,000 casual workers are engaged in charcoal and fuel wood production and marketing, tree planting and fixing sand dunes, forest reserve protection, and other activities. Lack of funds and skilled manpower are the main problems which have constrained the development of forestry resources during recent years. The wide dispersion of forests has also had an adverse effect on development. The important native trees include Boswellia in the Northeast producing frankincense, Comniphora in the Southwest producing myrrh and Cordeauxia edulis in the Central region producing "yicib" nuts. The estimated areas of major forest by type are given in Table 11.

Table 11: Major Forestries

(hectares and per cent)

	hectares	per cent
Junipers	40,000	0.46
Riverine	60,000	0.68
Dense savannah	2,500,000	28.41
Bush and scrub	6,197,000	70.42
Trial plantations and shelter	3,000	0.03
Total	8,800,000	100.00

Source: Paper prepared for Least Developed Countries Conference, 1981.

2.2. Non-renewable resources

The development of mineral resources and their full industrial utilization are long-term propositions in all developing countries. To accelerate the tempo and bring mineral resources to a stage where they could be used as industrial raw materials or profitable export commodities, policy measures will have to be implemented in: (a) expediting the process of prospecting, estimating the reserves, and determining the quantity and properties of known minerals; (b) organizing power and water requirements for the extraction of minerals; and (c) the development of an appropriate transport system to facilitate the economic exploitation of minerals. The mobilization of domestic and foreign funds for financing purchases of machinery and equipment is also central to the development and exploitation of mineral resources. Favourable policies for private foreign investment could play an important role in the development of mineral resources in Somalia.

The efforts of the Government are directed towards the establishment of the necessary basis for the development of mineral resources of the country. The programme of mineral and geological research is generally confined to prospecting for mineral deposits, development of water resources, and exploration for oil.

2.2.1. Geographical distribution of (prospective) mineral resources

The most promising provinces for the discovery of mineral deposits are the areas of the basement crystalline rocks in the North and the Bur areas in the South. These two regions are the main targets for the prospecting of metallic ores and are both equally promising from the standpoint of mineral possibilities.

The Bur area is characterized by a flat and featureless plain which is covered with a thick mantle of alluvium and dense vegetation. No outcrops of the basement are known with the exception of rare granitic monadrocks, locally named Burs. This physical peculiarity poses great difficulties for geological survey as well as mineral investigation. In such conditions, a wide use of geophysical prospecting and drilling methods are believed to be the most effective means of investigation.

Among the minerals reported to occur in the Bur areas are iron ore, thorium-uranium, pyrite, chalcopyrite, molibdinite, silver (geochemical), tin (geochemical), chromium, nickel, vermiculites, copper (geochemical), marble and phosphorous-bearing rocks. The thorium-uranium deposits and the iron ore despoits are the most important mineral findings of the area.

The basement rocks in the northern regions are situated in well-exposed areas and the outcrops are open to direct observations. The area is predominantly mountainous and is as such difficult to reach. Almost all known mineral occurrances in the North are confined to the basement rock. In addition to the various mineral occurrances already known, a wide geochemical survey recently conducted on the basement rocks of the northern regions has shown about 40 geochemical anomalies, many of which warrant further evaluation and follow-up. The geochemical anomalies are represented by nickel, chromium, zinc, lead, maganese and copper. The mineral occurrances confined to the basement rocks of the northern regions are represented by tin, quartz, beryl, colombite-tantalits, mica, copper mineral, barytes, flurites, galena, maganese, monazite, keonite, talc, molybdanite, varmiculite and tuile. The basement crystalline rocks offer also wide possibilities of finding out large deposits of building raw materials such as feldspars, nefeline synite, kaolin, granite and marbles, etc. Many parts of Somalia are covered with tertiary formations mostly represented by limestones and sandstone, which constitute high-grade building stone.

2.2.2. Availabilities by resource (alphabetical order)

Gold - Quartz veins are widespread on the Arabsiyo Gsd Debts area in the vicinity of Hargeisa town. In some vein samples, gold mineralization has been observed.

Gypsum/anhydrite - The gypsum/anhydrite deposits are located at Suria Malable about 16 km from Berbera, being among the world's largest. It contains about 7 million tons of high grade gypsum and anhydrite reserves. Including additional exposure of gypsum and anhydrite within 30-50 km from Berbera, the gypsum anhydrite deposits amount to some 30 million tons.

Iron ore - Deposits are situated in the central portion of the Bur uplift, between the towns of Baidao, Minsor and Bur Asaba. The area is predominantly flat flying terrain with an average elevation of 350-400 metres. There is a ferrogeneous quartzite containing mesnotite, nesmatite and quartz. The grade of the ore is between 35 and 40 per cent Fe, and SiO_2 content is 42-55 per cent. Total reserves are preliminarily estimated at about 170 million tons of iron ore.

Kynite - Small deposits of kynite were already known at Dsmal, Mirid and Dangal in the North. New Kynite discoveries have been made recently and are thought to be of economic interest. The newly discovered kynite-bearing rocks are distributed appropriately over an area of 350 sq. km in the basement rocks. The kynite content of the various occurrences ranges between 30 and 55 per cent. The kynite of Dsmal alone was estimated at 400,000 tons, the average content of kynite being 33 to 34 per cent.

Lead-barite - Lead-barite mineralization occurs in the basement and in sedimentary rocks. Polymite lic (lead, zinc and copper) mineralization is believed to be connected with post-poleogene rift faulting in the North. Particular attention is being paid to the exploration and exploitation of non-metallic raw materials. In this respect, priority is given to exploration for asbestos, feldspars, kaoline and glass sand. Ornamental stones such as agate, marble and granite are also sought.

Oil - A thick sequence of sedimentary rocks of marine faces is spread over large areas of the country. Favourable geological and structural conditions for the accumulation of hydrocarbons within the underground sedimentary formations are expected. These expectations are validly supported by the discovery of oil and gas, although not in commercial quantities, in some exploratory wells drilled by oil companies.

Oil shels - Deposits of oil shels are located in the northern part of the country. The deposits are associated with Jurasic formations and crop out mainly in: Dibundules, Suria Malable and Bihin Goha. The reserves of oil shels at the surface are estimated at billions of tons.

Piezo-electric quartz - Recent surveys located high-grade piezo-quartz in several parts of the northern regions.

Sepiolite - A big deposit of sepiolite was discovered at El Bur, situated about 400 km north of Mogadiscio. This deposit is one of the largest known. The reserves of the sopiolite deposit are estimated at several million tons.

Sulphur - A small deposit of sulphur occurs about two miles west of Berbera. It is not considered of economic interest.

Tin (cassiterite) - Tin-bearing negmatite and quartz are known to occur in the eastern part of the basement at Msjayahan. During the colonial period the tin was mined by an Italian company until the Second World War at which time the mine was abandoned. The tin project in the Bosaso area of Northeast Somalia, which produced 134 tons of tin concentrate in 1979, was abandoned with the departure of the Bulgarian consultants. A new project has been established in the Majayahan-Dalan area for the exploration and pilot exploitation of the tin deposit through bilateral co-operation.

Titanoferous sand - A large deposit of titanoferous black sand occurs at the mouth of the Guiba River on the coast of the Indian Ocean. This deposit has been partially investigated and it offers good prospects for the extraction of considerable amounts of titanium which are contained in titaniferous magnetics ilminite and rutile. As a result of preliminary evaluation of the deposit, the reserves have been estimated at 10 million tons TiO_2 (as ilminite, rutile and other minerals) with 1.41 per cent of average TiO_2 content in the sands. Because of its proximity to Kismayu port, the deposit is in a favourable geographical position.

Uranium - Uranium ore (carnotite) is the most important mineral discovered so far within the sedimentary rocks in the central part of Somalia (Mudung province). The radioactive areas were discovered as a result of geological investigations carried out by a project established through co-operation between the Somali Government and the United Nations Development Programme. The areas cover 170 sq. km in a belt extending 240 km from El Bur through Dusa Mareb to Galinsor. The uranium vandium deposit was established in a

sequence of continental and lagonal sediments. There exists a lack of adequate technical means to drill into hard rocks and to dig pits below the groundwater table, so some areas have not been completely explored. This is why the evaluation of the prospects is not yet final. In the Wabo area, the reserve is about 5,500 tons at an average grade of 0.08 per cent U_3O_8 and average ore thickness of 2.2 meters and about 4,400 tons at an average of 0.1 per cent U_3O_8 and an average thickness of 2.45 meters. The total probable reserves of uranium with an average content of 0.08 per cent U_3O_8 in all Mudugh are about 20,000 tons.

Other minerals - It is known from previous investigations that polimetallic mineralizations (lead, zinc, copper) are present in several localities in the sedimentary rocks of the northern regions.

There are traces of such rare metals as rubidium, tantalum and cesium at Bosaso, but the mineral content is low. The National Geological Survey is currently engaged in mapping and mineral exploratory investigation in the Bur area, where deposits of lead and gold have been reported. Coal deposits in the Erigavo area of Northern Somalia are also being assessed. An iron ore project is being investigated in the Bur area of the Bay region. There are some 33 million tons of 38-40 per cent iron content.

The Government is encouraging companies to intensify their oil and natural gas investigations. This has led to an increase in the number of foreign firms undertaking petroleum exploration. The Government also obtained a credit of $6 million from the International Development Association (IDA) of the World Bank to partially finance this exploration.

The Somali Government and the Arab Mining Company signed a joint venture agreement and formed a jointly-owned company which was licensed to prospect for uranium over an area of 57,000 sq. km. The results of the work done have been encouraging. This work will continue during the next Plan period.

The Five-Year Development Plan (1982-86) proposes, inter alia, to continue work on such projects as iron ore and mapping, the Galguduud uranium project and the petroleum exploration project, for which funding is assured at least

for the early part of the Plan period. A glass and ceramics project is also proposed in this Plan. This is a follow-up of the Bulgarian bilateral aid programme of 1976-78 under which kaolin, feldspar, glass sands, limestone and clay in the Baidoa and Hargeisa areas were investigated. This work should be co-ordinated between the Ministry of Minerals and Water Resources and the Ministry of Industry.

III. THE DEVELOPMENT OF INDUSTRIAL BRANCHES AND THE POTENTIAL FOR RESOURCE-BASED INDUSTRIALIZATION

3.1. The relative specialization of Somalia's industry at the branch level: A stock-taking of developments in the seventies

Clearly, the potential for resource based industrialization (RBI) depends on the availability of resources. However, resource availabilities are only necessary, but not sufficient conditions: they neither have direct implications for a country's comparative advantage in resource intensive product lines nor can the potential for resource based industrialization be assessed by considering only the supply side. This chapter is to analyze the industrial development of Somalia and its RBI-potential by taking both supply and demand aspects into account.

A useful tool for doing this is to establish Somalia's "Relative Specialization" (RS) at the branch level and to evaluate it with respect to the country's comparative advantage in terms of its endowment with resources and factors of production. The RS of a country at the branch level is a measure which compares the actual value added of a branch to an average value added of this branch in countries at the same stage of development, with similar resource endowments and comparable internal markets.

These average levels of value added for three-digit ISIC branches were estimated for a number of countries by UNIDO, using GDP per capita as an indicator for the stage of development and population as an indicator for market size.[15/] Additionally the general degree of industrialization of a country was used as a third explanatory variable in the estimations of the value added of individual branches. The equations for the estimation of the average value added figures again were computed separately for different sub-groups of countries, using country size (population) and resource endowment (indicated by per capita value added in the primary sector) as stratification criteria.[16/] The RS of a country in a branch, then, was defined as the ratio of the observed value added of this branch to the estimated, average value added. Thus, a RS ! indicates a relative specialization in this branch.[17/]

Deviations of actual from estimated values do not have any normative implications, unless they are checked against the country's comparative advantage and the potential demand. To give some examples:

- A high RS value in a branch where the country enjoys a comparative advantage would indicate proper development policies; if this high RS was based on ("natural") import substitution (IS), one would have to look at the demand side in order to assess the potential for export promotion; if, on the other hand, the high RS was already the result of export promotion policies, one would have to analyze very carefully the potential for further export growth.

- A high RS value in a branch, where the country has a comparative disadvantage, would indicate policy induced import substitution (as opposed to "natural" IS, based on comparative advantage) or inefficient export promotion policies; in both cases one would have to be very skeptical about the future contribution of this branch to the growth of the respective country.

In an analogous way, unusually low RS values would have to be interpreted and analyzed. Table 12 gives an overview of the relative specialization, changes therein and thus illustrates the structural change of Somali industry between 1970 and 1978. RS values marked with one to three asterisks indicate the degree of significance of the deviations of observed from estimated value added figures, taking account of differences in the branch specific distributions of observed and estimated values. The highest degree of significance is indicated by three asterisks. Additionally, Table 12 also shows the figures of actual and projected value added at the branch level at constant 1975 prices.

Before analysing the past development and future prospects of Somali industry with special emphasis on resource processing, some general characteristics of Somalia's industrial development in the seventies will be pointed out. First of all, there was a marked diversification of Somalia's industry. The weight of the dominant branch, food production, was reduced from a share of 83.9 per cent in total manufacturing value added in 1970 to 34.3 per cent in 1978. Correspondingly, industrial production in other branches expanded rapidly, most remarkably in the printing and publishing and textiles branches.

Table 12: Structural Change and Relative Specialization, 1970 and 1978

ISIC	ISIC Description	Share in total manufacturing value added	Value Added 1970 [1] Actual	Value Added 1970 [1] Projected [2]	RS 1970 [3]	Share in total manufacturing value added	Value Added 1978 Actual	Value Added 1978 Projected	RS 1978
311	Food products	83.9	30.000	8.970	3.344*	34.3	20.250	14.076	1.439*
321	Textiles	3.3	1.176	2.011	0.585	13.9	8.232	3.641	2.261*
322	Wearing apparel excluding footwear	1.0	360	1.051	0.343*	2.5	1.456	1.525	0.955**
323+324	Leather products	1.5	544	300	1.813	5.9	3.456	448	7.714**
331	Wood products excluding furniture						-	1.549	-
332	Furniture excluding metal	2.0	702	468	1.500*	21	1.508	646	2.334
342	Printing and publishing	2.9	1.035	505	2.050*	19.5	11.500	749 [4]	15.354 [4]***
351	Industrial chemicals							2.978	-
352	Other chemicals	2.2	792	366	2.164*	5.2	3.048	754	4.042**
354	Miscellanous petrol and coal products							171	-
355	Rubber products							117	-
356	Plastic products	1.0	360 [5]	112 [5]	3.214*	6.9	4.068	177	22.983
361	Pottery, china, earthenware						-	940	-
362	Glass and products						-	75	-
369	Other non-metallic mineral products	1.5	540	1.320	0.409*	4.9	2.900	2.058	1.409
371	Iron and steel						-	352	-
372	Non-ferrous metals						-	94	-
381	Fabricated metal products						-	1.157	-
382	Machinery, excluding electrical						-	206	-
383	Machinery, electric						-	151	-
384	Transport equipment						-	173	-
385	Professional and scientific equipment							96	
390	Other manufacturing products	0.7	266	413	0.644	4.5	2.646	678	3.903*

Source: UNIDO Data Base, Information supplied by the United Nations Statistical Office, with estimates by the UNIDO Secretariat.

1/ Value added in thousand US dollars, at constant 1975 prices.

2/ Estimates according to the procedure described in the United Nations Development Organization's Handbook of Industrial Statistics, New York 1982, pp. 52-54.

3/ "Relative Specialization", calculated as the ratio of actual over projected values.

4/ 1975 data.

5/ 1972 data.

The falling share of food production meant a reduction from a slight (as indicated by only one asterisk) relative specialization in this branch in 1970 to an average production level in 1978. The same pattern can be observed regarding the changing RS values of the wearing apparel branch. One branch, other non-mettalic mineral products, reached an average position in 1978, catching up from a relatively lagging level of activity in 1970. Four branches, - textiles, leather products, furniture and the residual category "other manufactures" -, increased their value added from an average level in 1970 to a slightly (textiles, furniture, "other") or clearly (leather products) above average level in 1978. Finally, three branches, - printing and publishing, other chemicals and plastic products - increased their positions from comparatively slight to very clear positions of relative specialization.

Additional information on the pattern of structural change in Somalia's manufacturing sector can be obtained from Table 13, which shows the annual growth rates of real manufacturing value added in the 1970-1978 period. The highest growth rates were achieved by the branches: printing and publishing, beverages, plastic products and "other manufactured products".

Crude yardsticks for the assessment of the structural change as reflected in the figures of tables 12 and 13, can be derived from Table 14. The figures on "value added per employee" can be used as indicators for the relative capital intensities of the production processes in the respective branches. Thus, the by far most capital-intensive production processes can be observed in the plastic products branch, followed by printing and publishing and beverages.

Comparing this result with the growth rates given in Table 13 shows that it was just these three sectors which achieved the highest growth rates in the 1970 to 1978 period. An additional look at Table 12 makes clear that this pattern of structural change is far from what could be expected for a country at this stage of the development process, with the structural characteristics of Somalia (there were no data available to calculate the corresponding figures for "beverages" in Table 12).

Somalia

TABLE 13. ANNUAL GROWTH RATES OF REAL MANUFACTURING VALUE ADDED, 1970-1980
(PERCENTAGES ON THE BASIS OF VALUES IN 1975 US$ CONSTANT PRICES)

ISIC	ISIC-DESCRIPTION		70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78	78/79	79/80	##/##
3110	Food products		12.2	-12.9	9.1	-8.3	13.6	2.0	-2.9	6.1	-7.6	11.3	1.4
3130	Beverages		.	...	...	...	.	...	...	...	...	...	42.5
3210	Textiles		85.7	66.7	72.3	-45.5	63.9	-23.0	115.6	-11.4	...	...	22.9
3220	Wearing apparel, except footwear		20.0	24.1	29.9	125.3	-49.0	98.0	-30.3	31.9	...	...	19.5
3234	Leather products	a/	11.8	-5.3	172.2	48.0	-31.0	-17.0	84.3	41.2	...	...	24.7
3320	Furniture, except metal		14.8	6.5	36.4	24.4	-10.7	-2.0	-20.4	48.7	...	...	8.0
3420	Printing and publishing		.	...	...	...	.	...	...	...	...	...	61.9
3510	Industrial chemicals		.	.	.	.	.	.	.	.	...	...	...
3520	Other chemicals		60.6	52.8	22.2	-9.1	11.1	8.0	-0.9	18.7	...	...	14.4
3530	Petroleum refineries		.	.	.	.	.	.	.	.	...	...	...
3540	Misc. petroleum and coal products		.	.	.	.	.	.	.	.	...	...	...
3550	Rubber products		.	.	.	.	.	.	.	.	...	...	...
3560	Plastic products		...	...	290.0	269.2	-30.6	68.0	-43.5	18.9	...	...	38.9
3610	Pottery, china, earthenware		.	...	...	...	.	...	...	...	...	...	...
3620	Glass and products		.	.	.	.	.	.	.	.	...	...	...
3690	Other non-metallic mineral products		-14.8	100.0	60.9	24.3	8.7	-19.0	28.4	39.4	...	...	23.5
3710	Iron and steel		.	.	.	.	.	.	.	.	...	...	...
3720	Non-ferrous metals		.	.	.	.	.	.	.	.	...	...	...
3810	Fabricated metal products		...	...	...	...	...	...	...	...	...	...	...
3820	Machinery, except electrical		.	.	.	.	.	.	.	.	...	...	...
3830	Machinery electric		.	.	.	.	.	.	.	.	...	...	...
3840	Transport equipment		.	.	.	.	.	.	.	.	...	...	...
3850	Professional & scientific equipment		.	.	.	.	.	.	.	.	...	...	...
3900	Other manufactured products		89.5	-8.3	48.5	67.3	22.0	3.0	76.7	3.8	...	...	32.8
3000	TOTAL MANUFACTURING		10.5	-0.7	26.7	3.6	44.3	-22.9	7.7	8.8	-54.7	11.3	0.8

SOURCE: UNIDO Data Base; Information supplied by the United Nations Statistical Office, with estimates by the UNIDO Secretariat.

##/ The initial- and/or the end-year of the trend-growth, is always the first and/or the latest year shown in the year-to-year-growth

NOTE: TOTAL MANUFACTURING is the sum of the available components and does not necessarily correspond to ISIC 300

FOOTNOTES:

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TABLE 14 PERFORMANCE OF MANUFACTURING SECTOR BY BRANCHES

ISIC	ISIC-DESCRIPTION	Value added per employee (thousand US$) 1970	1977	Value added per establishment (thousand US$) 1970	1977	Share of wages & salaries in value added percent 1970	1977	Share of GFCF in value added percent 1970	1977	Share of value added in gross output percent 1970	1977
3000	TOTAL MANUFACTURING	2.6	3.7	77	150	28.5	25.9	5.0	38.1	60.1	46.4
3110	Food products	4.1	2.9	212	174	22.4	31.7	2.5	15.3	65.2	34.2
3130	Beverages	1.5	8.5a/	59	1320a/	40.0	14.8a/	34.7	6.4a/	37.8	68.1a/
3210	Textiles	0.2	3.6	26	678	260.9	30.6	56.0	62.3	23.9	55.4
3220	Wearing apparel,except footwear	...	2.2	...	19	...	27.9	...	0.3	...	57.9
3230	Leather products	1.0b/	2.4b/	20b/	60b/	47.1b/	46.0b/	1.4b/	29.2b/	59.3b/	37.4b/
3310	Wood products,except furniture	...	...	...	...	...	...	...	...	...	...
3320	Furniture,except metal	0.5	1.0	5	10	94.6	78.3	7.5	3.4	36.7	21.0
3410	Paper and products	...	...	...	...	...	...	...	...	...	...
3420	Printing and publishing	1.8	7.0	51	5600	46.6	22.3	3.7	24.5	62.1	60.9
3510	Industrial chemicals	...	...	...	...	...	...	...	...	...	...
3520	Other chemicals	0.0	3.5	0	92	2960.0	28.5	****.*	58.3	0.3	19.5
3530	Petroleum refineries	...	...	...	...	...	...	...	...	...	...
3540	Misc. petroleum and coal products	...	...	...	...	...	...	...	...	...	...
3550	Rubber products	...	...	...	...	...	...	...	...	...	...
3560	Plastic products	...	15.7	...	3228	...	8.3	...	0.5	...	71.9
3610	Pottery,china,earthenware	...	...	...	3	...	...	...	...	...	88.9
3620	Glass and products	...	...	...	...	...	...	...	...	...	...
3690	Other non-metallic mineral products	0.6	1.3	3	25	34.7	37.9	2.3	559.4	33.8	42.3
3710	Iron and steel	...	...	...	...	...	...	...	...	...	...
3720	Non-ferrous metals	...	...	...	...	...	...	...	...	...	...
3810	Fabricated metal products	0.8	1.9	4	17	42.6	50.5	0.5	3.4	39.6	30.6
3820	Machinery,except electrical	...	...	...	...	...	...	...	...	...	...
3830	Machinery electric	...	...	...	...	...	...	...	...	...	...
3840	Transport equipment	...	...	...	...	...	...	...	...	...	...
3850	Professional & scientific equipment	...	...	...	...	...	...	...	...	...	...
3900	Other manufactured products	0.7	1.7	6	62	73.7	24.7	2.7	3.2	45.2	38.5

SOURCE: UNIDO data base,Information supplied by the United Nations Statistical Office,with estimates by the UNIDO Secretariat.

*/ Value added(in US $) was calculated using value added in national currency and mid-year exchange rates

Footnotes:

a/ 3130 3140

b/ 3230 3240

Beyond this, the observed pattern could not have been expected either with respect to the country's comparative advantage as derived from the factor proportions model. As Somalia is relatively poorly equipped with capital, the country's fastest growing branches should have been those relatively intensive in the use of labour, unless a strong cost advantage could be established for those capital intensive branches using intensively the natural resources of the country. This is clearly not the case in printing and publishing. Yet, there is not sufficient information available regarding the kind of plastic products being produced to draw definite conclusions. As, however, an important input for plastics production is oil, which has to be imported, it is hard to imagine that the inadequacy of such capital intensive production processes for a capital-poor country like Somalia could really be compensated by the local availability of cheap key inputs.

Additional aspects are indicated by the figures shown in Table 15. It shows, that in the fastest growing branches industrial capacity was highly concentrated, in fact, in just one enterprise in both the printing and publishing and the plastics branch. Thus, in 1977 the enterprises of the three branches which grew fastest accounted for only 28 per cent of the total gross output in manufacturing and for 40 per cent of total manufacturing value added, (MVA) as can be derived from Table 16. However, reflecting the capital intensity of the production processes, the beverages, printing and publishing and plastics branches contributed these 40 per cent of total MVA using only 17 per cent of the labour force employed in manufacturing.

To sum up this first assessment of the general structural transformation of Somalia's manufacturing sector in the seventies, a broadening of the industrial base is obvious. The preponderance of the food processing branch was reduced, with other branches building up their capacities at the same time. This basically beneficial process of industrial diversification, however, had some characteristics making a cautious appraisal advisable:

- Firstly, the fastest growing branches were not the ones one could have expected to be both from Somalia's comparative advantage and from cross country evidence.
- Secondly, the observed development pattern implies an increasing concentration of industrial capacity on some large enterprises. Both trends,

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TABLE 15. NUMBER OF ESTABLISHMENTS, EMPLOYMENT, WAGES AND SALARIES
MONEY VALUES IN NATIONAL CURRENCY (AT CURRENT PRICES)

ISIC	ISIC-DESCRIPTION	Number of establishments establishm. 1970	Number of establishments establishm. 1977	Employment employees 1970	Employment employees 1977	Wages and salaries (thousands) 1970	Wages and salaries (thousands) 1977
3000	TOTAL MANUFACTURING	183	257	5295	10460	28570	63009
3110	Food products	59	63	3047	3792	20027	21819
3130	Beverages	5	5 a/	190	773 a/	840	6145 a/
3210	Textiles	7	10	800	1893	3366	13051
3220	Wearing apparel, except footwear	...	46	...	406	...	1559
3230	Leather products	10 b/	19 b/	197 b/	475 b/	659 b/	3318 b/
3310	Wood products, except furniture	...	0	...	0	...	0
3320	Furniture, except metal	30	28	353	282	1088	1401
3410	Paper and products	...	0	...	0	...	0
3420	Printing and publishing	9	1	251	800	1533	7857
3510	Industrial chemicals	...	0	...	0	...	0
3520	Other chemicals	9	7	120	186	296	1159
3530	Petroleum refineries	...	0	...	0	...	0
3540	Misc. petroleum and coal products	...	0	...	0	...	0
3550	Rubber products	...	0	...	0	...	0
3560	Plastic products	...	1	...	206	...	1684
3610	Pottery, china, earthenware	...	4	...	0	...	0
3620	Glass and products	...	0	...	0	...	0
3690	Other non-metallic mineral products	33	45	184	848	267	2667
3710	Iron and steel	...	0	...	0	...	0
3720	Non-ferrous metals	...	0	...	0	...	0
3810	Fabricated metal products	7	8	33	72	81	429
3820	Machinery, except electrical	...	0	...	0	...	0
3830	Machinery electric	...	0	...	0	...	0
3840	Transport equipment	...	0	...	0	...	0
3850	Professional & scientific equipment	...	0	...	0	...	0
3900	Other manufactured products	14	20	120	727	413	1920

SOURCE: UNIDO Data Base, Information supplied by the United Nations Statistical Office, with estimates by the UNIDO Secretariat.

Footnotes:

a/ 3130 3140
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TABLE 16. GROSS OUTPUT, VALUE ADDED, GROSS FIXED CAPITAL FORMATION
MONEY VALUES IN NATIONAL CURRENCY (AT CURRENT PRICES)

ISIC	ISIC-DESCRIPTION	Gross output at producers' values (thousands) 1970	Gross output at producers' values (thousands) 1977	Value added at producers' values (thousands) 1970	Value added at producers' values (thousands) 1977	Gross fixed capital formation (thousands) 1970	Gross fixed capital formation (thousands) 1977
3000	TOTAL MANUFACTURING	166420	523740	100100	243030	5003	92704
3110	Food products	137080	201460	89340	68820	2208	10543
3130	Beverages	5550	60990 a/	2100	41560 a/	729	2677 a/
3210	Textiles	5390	77100	1290	42690	722	26587
3220	Wearing apparel, except footwear	...	9630	...	5580	...	17
3230	Leather products	2360 b/	19310 b/	1400 b/	7220 b/	20 b/	2109 b/
3310	Wood products, except furniture	...	0	...	0	...	0
3320	Furniture, except metal	3130	8540	1150	1790	86	61
3410	Paper and products	...	0	...	0	...	0
3420	Printing and publishing	5300	57890	3290	35250	123	8639
3510	Industrial chemicals	...	0	...	0	...	0
3520	Other chemicals	3610	20840	10	4060	1081	2369
3530	Petroleum refineries	...	0	...	0	...	0
3540	Misc. petroleum and coal products	...	0	...	0	...	0
3550	Rubber products	...	0	...	0	...	0
3560	Plastic products	...	28260	...	20320	...	97
3610	Pottery, china, earthenware	...	90	...	80	...	0
3620	Glass and products	...	0	...	0	...	0
3690	Other non-metallic mineral products	2280	16620	770	7030	18	39325
3710	Iron and steel	...	0	...	0	...	0
3720	Non-ferrous metals	...	0	...	0	...	0
3810	Fabricated metal products	480	2780	190	850	1	29
3820	Machinery, except electrical	...	0	...	0	...	0
3830	Machinery electric	...	0	...	0	...	0
3840	Transport equipment	...	0	...	0	...	0
3850	Professional & scientific equipment	...	0	...	0	...	0
3900	Other manufactured products	1240	20230	560	7780	15	251

SOURCE: UNIDO Data Base, Information supplied by the United Nations Statistical Office, with estimates by the UNIDO Secretariat.

Footnotes:

a/ 3130 3140

b/ 3230 3240

increasing divergence from comparative advantage and growing industrial concentration, should be reversed.

In the following sections of this capter more in-depth analysis at the branch level will be conducted. The analysis will be limited to branches processing locally available natural resources, in order to assess the potential of these branches to contribute to Somalia's industrial development in the future.

3.2. "Leading" branches

A general overview on some characteristics of the leading sectors is given in Table 17.

Table 17: Relatively Advanced Sectors, 1978

ISIC	321 Textiles	323 Leather products	332 Furniture except metal	352 Other chemicals	356 Plastic products	390 Other manufactured products
RS	2.261	5.350	2.334	4.042	22.983	3.903
Gross Output						
actual	10,846	4,331	2,018	3,929	5,340	3,337
projected	4,797	561	864	973	233	855
balance	6,049	3,770	1,154	2,957	5,107	2,482
Trade[1]						
exports	-	-	-	356[1]		
imports	13,404	2,224	1,674	9,613	729	2,239
balance	-13,404	-2,224	-1,674	-9,257	- 729	2,127
Degree of Self-Sufficiency[2]	44.7	66.1	54.7	29.8	88.0	61.1
Employment Share, 1977	18.1	4.54	2.70	2.27	1.97	6.95
Share in Wages and Salaries of manufacturing total, 1977	20.7	5.27	2.22	1.84	2.67	3.05
Value Added per employee US $1,000, 1977	3.6	2.4	1.0	3.5	15.7	1.7
Share of Private Sector in Gross Output, 1979	2.3	13.8	83.4	97.0	-	6.2

Source: UNIDO data base, Information supplied by the United Nations Statistical Office, with estimates by the UNIDO Secretariat.

1/ In thousand US dollars, at current 1975 prices.

2/ Share of domestic production in apparent consumption.

It shows that in most sectors the "degree of self-sufficiency" is already reasonable or even very high. In the most capital intensive branch, plastic (356), it reached 88 per cent. The high shares of domestic production in domestic consumption combined with the virtual absence of exports point to the import-substitution character of the past growth of the leading sectors. At the same time, they indicate that the growth of these sectors may slow down to the rate of growth of internal demand in the foreseeable future, unless new export markets would be opened up. This point of slowed growth can clearly be reached below the full self-sufficiency level. This would be the case if, within the analysed three-digit ISIC branches, sub-branches with a more marked comparative advantages had already reached degrees of self-sufficiency far above the aggregated branch averages shown in Table 16. The theoretically remaining potential for import substitution, then, would stem only from sub-branches where the country's comparative advantage is very small, as opposed to the sub-branches which would have been contributing most to the growth of the total branch in the past. The following analysis of leading branches will be limited to the branch producing leather manufactures (ISIC: 323 and 324), being the only one among the leading branches using intensively domestic resources as input for processing.

As livestock production is the most important sub-sector in Somalia's economy, a strong position of the leather products branch in Somalia's manufacturing sector is just what could have been expected, taking into account the country's comparative advantages. This holds for both the availability of domestic resources as well as the relative labour intensity of the production function (c.f. Table 14).

The growth of Somalia's leather branch in the seventies was the result of "natural" import substitution, i.e. industrial capacity in line with the country's resource and factor endowments was built up in order to serve the domestic market. In 1978, domestic production contributed an estimated 66 per cent to domestic consumption. Thus, there still seems to be some additional growth potential in the domestic market. But, as already mentioned, in specific product lines the degree of self-sufficiency may be much higher already, whereas in others it may be substantially less. In this situation, an almost natural policy choice for securing the growth of the branch

would be to promote the exports of the most advanced sub-branches and to develop the lagging sub-branches. A closer look reveals that the level of processing in the branch has been very low, the output consisting mainly of processed hides and skins. Thus, there exists a substantial potential of internal and external demand in further processed leather products like shoes, bags, etc. In fact, if efficient use could be made of Somalia's comparative advantages, potential export markets are nearby.

Therefore, the lower transportation costs might even compensate for efficiency advantages of well established Far Eastern suppliers on these nearby markets. Saudi Arabia, already a major trading partner of Somalia in live animals, imported leather, leather products and tanned, dressed fur skins worth US $7,322,000 in 1980. Of these imports, goods worth US $4,563,000 were imports from developing countries. Asiatic developing countries contributed a portion of this trade worth US $4,111,000. These imports from developing countries of just one close-by market in 1980 were slightly more than the total output of the branch in Somalia in 1978. However, the chances to expand sales into the market of Saudi Arabia and other Arab countries appear even more promising if one looks at Saudi Arabia's imports of footwear and clothing made from leather. They amounted to US $148,217,000 in 1980, of which US $76,180,000 were accounted for by imports from developing countries. Combining this last figure with the one given above for "other leather products" gives a total of Saudi Arabian imports of leather products from developing countries worth US $80,743,000 in 1980, almost nineteen times the output of the branch in Somalia in 1978.

These figures for only one market indicate that indeed there is a large potential demand for Somalia's exports of leather products. It should be possible to utilize this potential without encountering too heavy resistance from already well established suppliers from other developing countries. This assumption rests on the fact, that even the gain of a marginal share in Saudi Arabia's and other Arab countries markets would imply a substantial boost to the branch in Somalia.

In view of these quite promising prospects regarding the demand side it has to be asked now whether this potential foreign demand could be met from the supply side. An essential condition is the availabilitiy of quality hides

and skins in sufficient amounts. In the past, both the quantity and the quality of hides and skins supplied has been a problem.

As to quantities it is estimated by HASA, the state-controlled purchase monopsony, that during 1979 the total production of cattle hides was 193,200, camel hides 52,260 and sheep and goat skins 5,440,200. HASA was able to purchase only 35 per cent of cattle hides, 33 per cent of camel hides, and 69 per cent of sheep and goat skins, although in theory HASA is the sole buyer of hides and skins in the country. Certain numbers of skins purchased are thought to have originated in Ethiopia. The purchase prices by HASA have remained the same since 1976, at So.Sh. 4/kg for the first-grade suspension cattle hides, So.Sh. 32, camel hide and So.Sh. 9, skin. In 1979, the rates were well below world market prices, and thus, resulted in a decline in the supply of hides.

The camel hides purchased by HASA are 50 per cent wet salted, 40 per cent dry salted and 10 per cent ground dried. Ninety-five per cent of cattle hides purchased are dry salted, and 5 per cent ground dried, while 80 per cent of the sheep and goat skins are suspension dried and 20 per cent are ground dried.

Efforts to expand leather processing will have to cope not only with the supplied quantities, but also with problem of the low quality of available inputs. During a visit to the government tannery at Kismayu, it was observed that large percentages of hides and skins had various defects and were of low grade. The factory was operating at low capacity. Thus, there is an urgent need for improving the quality of hides and skins at the branding, flaying and salting stages. Such care can significantly improve export marketability of the hides and skins and at the same time increase profitability in the operation of tanneries. To bring prices paid by HASA in line with world market prices would be another important element in efforts to achieve this target. Increased income from sales of hides and skins will both enable the producers to improve the quality of their products (enabling them to acquire the necessary tools and equipment) and will also be an incentive for doing so at the same time. Steps into this direction have to be taken in an integrated effort to expand the production and processing of leather in the country. An

expansion of leather processing will increase internal demand for hides and skins and will thus support measures aiming at rising the prices received by the producers.

As to the existing industrial capacity there are seven tanneries. Four of these are owned by the government. They are located in Mogadiscio, Kismayu, Hargeisa and Burao. The three private ones are located in Mogadiscio, Barava and Kismayu. The Kismayu tannery was established in 1977 to process 500 cattle hides per day, to produce wet blue hides for export and sole upper finished leather for local consumption. The meat factory at Kismayu was to be the main supplier of hides, but since that factory has been operating intermittantly, the supply of hides to the tannery has been inadequate. The tannery has, therefore, had to include the processing of skins. The factory has 120 employees. In 1978 it produced 150,000 wet blue skins, 36,275 wet blue cattle hides, 14,000 sq. ft. of finished upper leather, and 2,270 sq. ft. of sole leather. The Mogadiscio tannery is fairly small and is being expanded to handle 2,800 pieces every day. Hargeisa and Burao tanneries specialize in sheep and goat skins. The capacity of the Hargeisa tannery is for 1.2 million pickled skins per year, which are being exported to the German Democratic Republic under a bilateral agreement. At times it has stopped functioning due to shortages of tanning materials. The factory at Burao has also not been functioning for similar reasons.

The fluctuations in the prices of tanned hides and skins in foreign markets have been a problem for the tanning industry in the country. More complete development of industrial activities based on hides and skins will provide employment opportunities, increase value added, and increase the social and economic benefits to the population. Efforts should, therefore, be made to establish facilities for the full exploitation of hides and skins resources, expecially to produce leather and leather products. Basic skills to convert leather to consumer products are available in the country. But there is a great and urgent need for upgrading the skills and capabilities which are necessary for the production of diversified high quality leather and leather goods. Presently, there are some small establishments making leather shoes.

To sum up, the production of leather products has been expanding in the past on a rather limited level of processing. Thus, there is promising potential now for a widening of industrial processing, like the production of shoes, handbags and other leather goods. There are close and big markets (especially in relation to the given size of the sector in Somalia) for the export of these goods in the region. An industrial strategy following these lines would have to use an integrated approach, aiming also at upgrading the quality of locally supplied inputs. An increase of the prices paid to the producer of hides and skins would both stimulate and enable them to raise the quality of their products. An in-depth study should be undertaken with a view to formulating an indicative plan for the further development of leather and leather-based products.

3.3. "Average branches"

Branches with an "average" value added in relation to comparable countries are characterized by RS values not too much (i.e., less than one standard deviation in the estimated average patterns) different from 1. Table 18 gives a general overview. The most important branch in this group as well as in the whole manufacturing sector is food production (ISIC 311). Its importance in the manufacturing sector is greater by any criterion than the importance of the wearing apparel (ISIC 322) and "other non-metallic minerals" (ISIC 369) branches. The following analysis will be dealing with the food processing and non-metallic minerals branches, which both use indigenous natural resources as inputs for production.

3.3.1. Food processing (ISIC 311)

The great weight of the food-processing branch in the Somali economy, taken together with an average RS value, confirms the general importance or even predominance of food processing in the early stages of development. A promotion of the activities of this branch is advisable for two reasons. First, comparative advantages exist for Somalia because the production process is normally relatively labour-intensive. The second reason is its backward linkages to the agricultural sector.

Table 18: Sectors with Average Relative Specialization, 1978

ISIC description	Food products	Wearing apparel excluding footwear	Other non-metallic minerals
ISIC	311	322	369
RS	1.439	0.955	1.409
Gross Output			
actual	26,452	2,018	3,681
projected	18,387	2,113	2,612
balance	8,065	-95	1,069
Trade			
exports	2,845	-	-
imports	33,901	6,516	159
balance	-31,056	-6,516	-159
Share of percentage, etc.	46.0	23.6	95.9
Employment share, 1977	36.25	3.88	8.11
Share in Wages and Salaries of Manufacturing total 1977	34.63	2.47	4.23
Value added per Cpl. $1,000, 1977	2.9	2.2	1.3
Share of private sectors in Gross Output (1979)	27.2	48.5	93.3

As Table 17 shows, the share of domestic production in apparent consumption was close to 50 per cent in 1978. However, this should not be confused with being almost 50 per cent self-sufficient in food production, because this figure shows neither the amount of unprocessed food being imported as input for domestic food production nor is it an indicator for the sufficiency of apparent consumption by any criterion. Due to the low overall level of production during the 1970s and the effect of the high export prices on local prices of animals, domestic per capita consumption of meat has

decreased. This, however, refers to bottlenecks in agricultural production which are not the core of this study. As far as processing is concerned, the figures given in Table A show that still there is a wide potential for import-substituting industrialization and for exports as well. Just like with leather products, one has to be very careful regarding the level of aggregation of the analysis. The lion's share of Somalia's exports originating in this branch consists of undressed hides and skins, which are basically a by-product of food processing only. Thus, exports of processed food are still virtually non-existent. Regarding export markets, the analysis of the previous section regarding export markets for the leather branch holds here as well. However, unlike the export of shoes etc., tough competition would have to be faced. This competition includes even the developing countries, as the EEC still heavily subsidizes its agricultural exports to non-member countries.

Since internal demand is still far from being satisfied and since there are, in principal, export markets available capable of high absorption, the causes for the poor performance of food processing compared to other branches has to be sought on the supply side and/or in the composition of exports.

Meat is processed in traditional butcheries, municipal slaughterhouses and in two meat processing factories with their own slaughterhouses, which have been established by the government. The Kismayu factory has capacity to slaughter 50 cattle per hour and can process meat of 250 heads per day for canning. It was designed to serve the market of the USSR. Until 1977 it regularly produced canned stewed meat for export to the USSR. During the mid-1970s, the factory also manufactured cooked corned beef for African and Mediterranean markets. And during the 1973 drought period, frozen meat was also one of its products. Due to the loss of the USSR market after the conflict with Ethiopia, the factory closed down in 1979. Thereafter, it has been operating intermittently in the face of difficult price competition in the European market for processed meat. The second factory in Mogadiscio, the Sopral meat factory, has not been operating since 1977 because it was unable to market its products at competitive prices. There is a plan to re-open this factory to produce corned beef for export.

The Government has not only given priority to the effective functioning of the two meat processing plants, but also intends to invest in a third abattoir and cold storage at Hargeisa. The viability of that project will depend on the price of frozen and canned meat produces and also on the fullest use of by-products. There are very many by-products which could be used in a variety of ways. Bones could be used for bone meal. Blood and stomach fill are discharged into the sea, and fleshings are not put to much use. The tallow is processed and use is being made of offal. The other by-products which are available from livestock are hides and skins, bone meal and blood meal, fleshing, intestines/bristles, and liver.

Dairy products are another important output of the food processing sector. Camel, cattle, sheep and goat milk are major food items for a significant section of the Somali population. The Government has developed a few farms for the production and supply of milk. Dairy farms also purchase milk, process and then supply it, particularly to town dwellers.

The milk factory at Mogadiscio is engaged in the production of pasteurized milk, cheese, cream, butter and ghee. Since 1975, dried skimmed milk, butter oil and water have been used to produce "toned" milk. Pasteurized milk was standardized to 2.8 per cent fat.

Demand for milk in Modadiscio during 1979 was estimated at 90,000 litres per day; this is expected to double by 1990. The capacity of the factory, built in 1965 with assistance from the USSR, is 10,000 litres of milk per shift. Daily intakes have ranged from 3,500 liters in 1970 to 11,000 litres in 1974 and 10,000 litres in 1979. The equiment of the factory, however, is worn out.

The supply of unprocessed milk in the country is substantial. A look at Table 19 shows that in 1972 and 1973 milk production dropped dramatically, but grew again at annual rates of around 7.5 per cent at the end of the seventies. However, the supply of milk is not continuous over the year, but varies with the rainfall pattern. Besides these discontinuities in supply, additional factors make a matching of supply and demand difficult.

Table 19. Milk production in Somalia

Year	Milk Production in millions of litres				Price/litre in Somalian shillings	Value of output in in millions of Somalian shillings	
	Cattle	Sheep and goat	Camel	Total		Current prices	1977 prices
1970	186.6	372.0	290.5	849.1	0.23	195.3	458.5
1971	190.4	379.6	296.4	866.4	0.23	199.3	467.8
1972	199.4	387.4	172.9	754.7	0.26	196.2	407.5
1973	135.2	254.8	182.4	572.4	0.29	166.0	209.1
1974	134.8	254.1	356.6	745.5	0.23	246.0	302.6
1975	180.2	408.7	328.3	917.2	0.43	394.4	495.3
1976	189.2	390.2	312.5	891.9	0.49	437.0	481.6
1977	208.0	425.2	328.3	961.5	0.54	519.2	519.2
1978	224.8	463.5	344.7	1,033.0	0.60	619.8	557.8
1979	244.0	505.2	361.9	1,111.1	0.67	744.4	600.0

Source: Somalia National Income Accounts, April 1980, IBRD.

At times full quantity is not milked because of lack of demand, particularly during the rainy seasons and in rural areas. This seasonal surplus supply cannot easily be converted into products which could be transported and preserved over a period of time:

- First, most of the surplus is in the possession on nomads who move from place to place, and who do not have interest in a system of milk collection and distribution;

- secondly, because of the nomads' mobility, the regional availability of surplus supplies may vary from year to year, and for this reason not be available to the processing facilities;

- thirdly, surpluses are only seasonal, and thus the enterprises based on those might not be able to function all the year round.

Before further investment decisions are made, it is necessary to embark first upon a detailed feasibility study.

The 1982-86 Plan puts sufficient emphasis on dairy farming. The Afgoi Dairy Farm modernization will involve an estimated expenditure of So.Sh 21.6 million, of which So. Sh. 9.1 million will be in foreign exchange. Among other things, it is expected to result in increased milk production of 1.0 million litres annually. The Benadir Dairy Project will integrate two existing municipal dairy units in Mogadiscio with two forage farms near Afgoi and a ranch at Warmahun. It is expected to supply 20,000 litres of milk daily to the Mogadiscio Milk Factory. The Gisoma project involves an expenditure of So.Sh. 517 million. It will also result in a complex near Afgoi which is projected to produce annually is projected 38,000 fattened cattle, 48,000 fattened sheep and 5,000 tons of processed milk, and will have a farm of 4,000 hectares. With the assistance of the EEC, it is also proposed to stimulate milk production by small farmers in the private sector in an area within 100 km of the Mogadiscio Milk Factory.

A third sub-branch of food production which might gain importance in the future is fish production. As shown in Chapter 2.1.3, the potential of fish production has been used only to a very limited degree in the past, and broad investment in the national fleet, giving special attention to the owners of small vessels, would be appropriate.

The domestic market for fish is very small, however, mainly because the local per capita consumption of fish is rather low. Somalia consumed 0.4 kg of fish compared with 9.9 kg in Tanzania, 11.4 kg in Uganda, 16 kg in Zambia and 20.8 kg in Sri Lanka. This is mainly because meat is perferred to fish,

and because the availability of fish - except at some places in the coastal areas - is largely limited, particularly due to lack of inland transportation facilities. As there is no import substitution potential, reliance on only the increased demand from rising per capita income or from shifting demand patterns (i.e. a wide acceptance of fish by greater parts of the population) might not give sufficient stimuli for an extension of production. Therefore, the market potential for increased fish production might have to be sought mainly on the export side.

There are processing facilities in Somalia which could use an increase in the supply of fish. The Kismayu Factory (being recommissioned by FAO) was established with American assistance. It has a 250 ton capacity freezing chamber of cold-store and a small flake ice plant. Fish and lobsters have to be transported there through launch service from Chiamboni and Kulmis. The trawler fleet will also land some catches; the increase in landings will necessitate the expansion of cold storage capacity. Financial assistance has been committed by the Federal Republic of Germany. The factory did not function from 1972 to 1979. Now it is processing fish from co-operative societies. New motor and sail-boats are to be supplied, and servicing and marketing co-operative societies will be established, and the freezing capacity will be expanded. At present, substantial quantities of fish are being sold in dried form.

The Laskoreh tuna canning factory is government owned and was built in 1966-1970 with USSR assistance. It has a fleet of local "houris", two freezer tunnels of 800 tons capacity, a cold store, three canning lines with a canmaking plant, a fish meat and oil extraction plant, boilers and diesel electric power supply. Except for the fish meal plant, which is currently out of order, the rest of the factory is mostly operating at only 25 per cent of the installed capacity. This is mainly due to inadequate supplies of fish.

Fish canneries at Candala and Habo, which were established before the Second World War, have recently attracted Government and Italian interests. They can fish of high quality of simple methods. Each factory can process 30 tons of fish per day and the chilled storage holds 15 tons for one day. The supply of fish is not enough to permit full utilization of capacities.

Neither factory worked during 1977-1978, and only the Habo Factory functioned during the 1978-1979 season. A jetty of 600 metres is needed at Candala to enable the larger fishing vessels to land their catches, and thereby to increase the supply.

The Bolimog fish freezing and cold storage factory was set up in 1966 by the Somali Development Bank. It was closed in 1978 for major overhaul. It has four blast freezer tunnels, each with a capacity of 12.5 tons of fish per day, a 2,500 ton capacity cold store, a fish meal plant (to use 25 tons of fresh fish and offal per day) and a centrefugal type fish oil recovery plant. The factory has a capacity to handle 10,000 tons of frozen fish and produce about 1,000 tons of fish meal and oil annually. However, since 1971 frozen fish production has not gone beyond 1,000 tons. Raw material supplies by small boats are inadequate. A suitable jetty to enable 30 metre motor vessels to land fish for Bolimog and Habo factories could improve the situation.

To sum up, all the four North Coast factories face a common problem of shortages of raw material supplies, the solution of which would brighten their prospects for the future. The small size of the Candala factory and its isolated location might result in its ultimate closure. Port facilities and other infrastructure also need much improvement to meet the requirements of the fish industry. Improvement in marketing facilities is essential. Integrated fishing and fish processing will go a long way to ensure the development of a successful fish industry. The potential, however, should be utilized.

Additionally to the meat, milk and fish processing sub-branches the establishment of new processing activities using other agricultural inputs should be promoted. This, however, requires increases of agricultural output and an emphasis on the launching of more investment resources into agriculture. At present, there is a very limited supply of such food crops as sorghum, maize, rice, beans and oil seeds. Whatever is produced is mostly for the subsistence of farmers. Food grains are being imported. The flour mills and pasta factories established in different parts of the country are working below capacity due partly to lack of raw materials.

The possibility of promoting enterprises to manufacture jaggery and "khandsari" (a produce between jaggery and crystal sugar but closer to sugar) should be explored. The investment involved would be small and within the reach of local entrepreneurs. Technical information could be obtained easily from both the industrialized and developing countries. An economic use of molasses has already been planned. Opportunities for the manufacture of industrial alcohol, which could partly be mixed with benzene for automobile fuel and partly for the production of cosmetics and other chemicals, should be studied. The possibility of recovering carbon dioxide by the sugar factories could be examined so as to facilitate the production of soft drinks. Sugar with milk could be used for the manufacture of ice cream and candy. Potential also exists for the use of milk in the local production of such dairy products as cheese.

Cotton seeds, along with other oil seeds, provide opportunities for the expansion of the oil milling industry. Similarly, from brans (such as that of rice), oil can be extracted to meet the increasing needs of the country. Oil cakes usually contain a sufficient quantity of oil to justify the establishment of solvent extraction plants. The residual cake is a suitable material for use as an important ingredient of animal and cattle feeds.

Bananas are the most important cash crops. Expansion of bananas production is planned during 1982-86. At present a significant portion (around 14 per cent) of the produce is partly used for feeding cattle. Some of this can be converted into banana powder which can be used in the manufacture of baby food, confectionery and ice cream. The powder could have export potentials. A viable plant to consume the bulk of such bananas could be established, possibly with foreign technical and financial collaboration. A moving press crushes banana trunks in the field, and the dry fibre can be used for cardboard. Banana fibre has been recognized as a good material for manufacturing bags, and the development of this industry could result in foreign exchange savings. Possibilities for promoting the extraction of pectin and papain from papaya also exist. There may be opportunities for the manufacture of tomato ketchup and sauce and grapefruit juice, and the production of jams, jellies, biscuits and bread. The processing of all these products would depend upon adequate supply of the raw materials, hence the importance of increased efforts and the availability of enlarged funds for the expansion of agricultural production has to be emphasized again.

To sum up the analysis of the food processing branch, there is substantial scope for further industrial development in the branches processing meat, milk and fish. The problems and bottlenecks of these three sub-branches are quite diverse.

- A main bottleneck for meat processing is the demand side; markets for which processing facilities have been set up were lost for political reasons. Increased marketing efforts should be undertaken to open up new markets on the Arab peninsular. At the same time, industry experts should study in detail the reasons for the inability of existing factories to market their products at competitive prices. Finally, programs designed to make better use of the existing capacities including the fuller use of by-products, should be given preference to the installment of new capacities.

- Milk processing also faces difficulties on the demand side, aggravated by seasonal fluctuations in the supply of milk. These problems, as far as they are based on the traditions of a nomadic, highly mobile society, cannot be solved quickly. However, the stimulation of milk production by small private farmers close to dairy farms should be encouraged.

- Fish processing faces both supply and demand bottlenecks. Due to local consumer preferences the internal market is very limited and growth potential would have to be looked for on the export side. Investment in the privately owned fleet of small vessels through the preferred allocation of credit would increase fish supply, provide employment and raise incomes. Unlike meat and milk processing, however, an increase of fish production would also require new investments in port facilities and other infrastructure. The growth potential of this branch, however, should be fully utilized.

- Finally, there is scope for processing other agricultural inputs. The question here is not so much which policy instruments could be used, but why certain activities have not been developed in the past. This question will be dealt with in Chapter IV.

3.3.2. Non-metallic mineral products (ISIC 361, 362 and 369).

Although the production of pottery and glass products is not developed at an average level, as Table 4 shows, they will be dealt with in this section together with the other non-metallic mineral branch (ISIC 369), as all three branches use non-metallic minerals as inputs. Additionally, there are potential linkages between these branches, since both the pottery and the glass branch could use the output of the other non-metallic minerals branch as input for further processing.

One example is feldspar. Deposits exist in considerable quantities and could be utilized for developing ceramics and glass industries. Similarly, extensive industrial possibilities exist for quartz. Asbestos is needed for the asbestos cement factory and also has scope for exports. Kaolin is another mineral of extensive use, particularly in the ceramics industry and as a filter and refractory material. Bentonite is a useful plasticizer in ceramics, refining of oils and wines and for drilling operations. Vermiculite is used as an insulating material. Talc is widely used for electro-porcelain and refractories and as a filter. Mica is highly demanded by the electrical industry for high-temperature refractory products. Manufacturing activities covering crucibles, refractories, pencils, and electrodes utilize graphite.

Occurrences of limestone are well spread out in the country and are more concentrated in Berbera, Hargeisa, Mogadiscio and Merca. Limestone is extensively used for making building blocks and quick lime (calcium oxide). It can also be used in the production of calcium chloride and calcium phosphate, both used as fertilizers. It can, in addition, be converted to precipitated chalk for extensive use as a filter for many products and as a foundation for face powders, toothpaste, and other products.

The Hargeisa-Berbera area is also known for significant deposits of gypsum. In the Suria-Malable area southeast of Berbera, gypsum of anhydrite grade is available. No deep mining is required to extract the reserves. There is an export market for gypsum in lump and crushed forms; it is already being used as a building material in place of clay bricks. When heated to 110 to 120 degrees centigrade gypsum yields hemihydrate, which can serve as cement or wall plastering material, and it is also used as a setting agent in the manufacture of Portland cement to the extent of 5 per cent. Gypsum is also

the basis for plaster of Paris, and in the process of manufacture, it yields sulphur as a by-product. Crushed gypsum can be used as a fertilizer and also as a filter in paints, paper, pharmaceuticals and insecticide formulation industries. It is also a soil reconditioner and can desalinize saline soils, and it is further used for the manufacture of plaster boards, sheets and ceiling panels in combination with wood fibre, animal hair and bagasse. It is also used as a moulding plaster in foundry and ceramics industries. Mixed with sapiolite, it forms a heat-insulating plaster. Sapiolite deposits are located in the El Bur area and can be used in making flower vases, jugs, ashtrays, tobacco pipes, cigarette holders and artistic wares. It is a soft refractory material used for lining fireplaces.

Common salt (sodium chloride) is an important industrial raw material in addition to its use for human consumption. It is used in soap making, the curing of hides and skins, fish curing and preservation. Through an electrolytic process salt can produce caustic soda, and chlorine as a by-product. Caustic soda can be converted into soda ash used in soap and glass industries. Chlorine is the basis for hydrochloric acid and in combination with naptha, a by-product of petroleum refineries, it produces polyvinyl chloride (PVC) and nylon filaments, both of which are important industrial raw materials. In combination with benzene it produces benzene hexachloride (BHC), a highly useful insecticide. Common salt is an important product from sea water. There is even scope for recovery of magnesium and other salts from the brine after crystallization of common salt. Feasibility studies should be undertaken and a report prepared for developing a complex of industries based on common salt.

To sum up, there are occurences of natural resources in the country which could be used for further processing. Unlike the agricultural resources dealt with in the preceding sections, however, it is not yet well known whether the available quantities and the extraction costs would warrant their exploitation or a development strategy aiming at the promotion of industries based on these resources. Hence, an inventory of available non-metallic mineral resources and feasibility studies for industries based on them would be required. However, in view of:

- the limited investment funds of a LDC like Somalia;

- the very often high capital intensity of the production processes in these branches, and

- the potential for further industrial growth based on an extension of the processing of renewable resources analysed in the preceding sections,

the development of these sectors should not be given first priority for the present. This does not preclude more emphasis on these sectors in the future, after the immediate needs of Somalia for economic stabilization and increases of food production have been solved.

3.4. "Lagging Branches"

There are a number of branches for which no activity could be reported in Table 12. The estimated values indicate that some countries at comparable levels of development did indeed have these industries. These projected values, however, should not simply be interpreted as a promising development potential for Somalia. They do not at all imply that the production in these branches is or could be done efficiently in any comparable developing country. With an inappropriate development strategy, disregarding aspects of efficiency and comparative advantage, almost every branch can be set up in any country. From a point of overall economic and social rentability this, of course, may imply a waste of resources. An example in case is the production of iron and steel (ISIC 371) - even if Somalia were richly endowed with the raw materials required as inputs, the high capital intensity of the production process would not render production efficient in any country at the stage of development like Somalia. In other words, a first reason for the lagging of such branches is that they just do not correspond to advantage and stage of development. Such an inefficient use of resources, however, seems to have been made in the plastic products branch (ISIC 356), where in a highly capital-intensive production process is being used to produce plastic bags.

The second reason for lagging branches is inappropriate or inadequate government policies for directing economic development in areas where resources and comparative advantage exist. This can be seen in the branch fabricated metal products and non-electrical machinery (ISIC 381 and 382).

Although generally the branches use to be quite capital-intensive, there exists scope at the sub-branch level for specialization in more labour-intensive activities. Additionally, these branches usually have an especially promising potential for external benefits, such as increases in the technological capabilities of the labour force, etc. The potential of these activities could be used in a development strategy which would continue to put emphasis on the use of animal power-operated agricultural implements, especially because of the abundance of cattle. Some of the animal-driven agricultural implements which are suitable for the country are: ploughs, sweeps, drills, weeders, diggers, harvesters, threshers, winnowers, etc. Such implements have been developed for various soil conditions in countries such as China, India and Pakistan. Presently, there exists some limited activity in these branches.

There is a project in the Baidio area for developing such implements to suit local conditions; and the Mechanical and Foundry Workshop in Mogadiscio is being utilized for developing prototypes. However, the co-operation of developing countries with relevant experience in the manufacture and utilization of these implements should be sought. In addition to the external benefit mentioned above, production of this kind of machinery is particularly important in view of the scarcity and high prices of imported fuel for mechanically-operated agricultural machinery and equipment. The question of why these activities have not been developed to a further extent in Somalia points to aspects of the overall development strategy which will be dealt with in the following chapter.

A third reason why certain branches are lagging refers to resource intensities of the production processes and lacking resource availabilities in the country. The wood processing brand, excluding furniture, is an example of this (ISIC 331). In chapter 2.1.4 was indicated that the main use of forestry resources has been as fuel wood in the past. This reflects largely the quality of available resources, which is determined by the climatic conditions. Also the planned development of forests during 1982-86 is not expected to provide much scope for promoting wood-based enterprises of great magnitude. Use can be made of "Galol" trees in the North for making mats, ropes, roofing material and animal feed. A study should be conducted to determine the viability of exploiting mahagony for veneer and swan timber for export.

Chapter IV.

STRATEGIES AND POLICIES FOR RESOURCE-BASED INDUSTRIAL DEVELOPMENT IN THE 1980S

4.1. Economic stabilization: Preparing the ground for accelerated industrial development

Up to 1977, Somalia's public budget and its external sector were more or less in balance. The 1977-78 conflict with Ethiopia led to a large influx of refugees. The efforts of the government to solve the resulting problems implied a substantial expansion of public demand, which was only in part financed by inflows of foreign aid. In consequence, budgetary and trade deficits appeared and widened. The Government recoursed to the Central Bank and credit and money supply were expanded. This sudden rise of aggregate demand could not be met immediately by increasing supplies, especially in a country like Somalia in which production had been stagnant or even declining in many agricultural and industrial sub-sectors during the seventies.[18/] The resulting syndrome of rising inflation rates and a further widening budgetary and trade deficits led the government (beginning in 1980) to embark upon three IMF supported and increasingly more consequently implemented stabilization programs.

Clearly, economic stabilization is not a goal in itself. It is more importantly a precondition for any industrial development program regardless of the strategy used in the program. Therefore, economic stabilization is certainly the main task to be achieved at the present time. Restraint of aggregate demand is necessary for stabilization, yet at the same time will limit the capacity of the government to actively pursue a development strategy by means of fiscal policies. In this situation, two conclusions seem obvious. First, a clear and consistent development program becomes even more important because the diminished amount of available resources increases the opportunity costs of allocating them to a specific project. Secondly, the need to pursue a development strategy by non-budgetary means gains even more significance.

As shown in the previous analysis, Somalia's industrial development has been very uneven at the branch level, partly in accordance with its resource endowment, partly as opposed to it. Some branches or sub-branches have developed using their comparative advantages for "natural" import substitution, others with the same potential have not been developed at all. Hence, what is called for is not the design of a development strategy along the lines of either "traditional" import substitution or export promotion policies, but a selective application of policy instruments which takes into account the specific conditions of the individual sectors and the imbalances between them. In doing this, however, the general tendency of such a policy package should be more on the import substitution side in view of the still very low level of industrial development. The smallness of Somalia's market should not be overemphasized as a reason for early search of export markets. The size of a market is determined both by income and size of population. Although the country's per capita income is very low, its population of 4.5 million would provide an increasing demand potential for "early" import substitution with rising overall income. This promotion of import substituting activities should be done with branch-specific, selective policy instruments in order to avoid discrimination against potential exports of sub-branches which are already developed and which have a potential for becoming internationally competitive.

4.2. Measures to improve the productivity of existing industrial capacity

As pointed out in the previous chapter, among the most promising branches for further industrial growth is food processing. Accordingly, an increasing share of investible resources should be devoted to:

- increasing the quantity
- improving the quality, and
- securing the continuity

of agricultural livestock and fisheries supplies. Giving preference to the agricultural sector in the allocation of resources in these circumstances does not mean a neglect of industrial development, but, on the contrary, the creation of preconditions for resource based industrial development. At the same time, solving the supply problem would increase the rate of utilization

of existing capacity, and by doing this it would raise the profitability of industrial activities.

One of the most efficient, though least costly means of promoting agricultural development would be to secure farm incomes sufficient for serving as a base for private agricultural investments. This would imply not allowing the agricultural terms of trade vis-à-vis the industrial sector to fall behind. Such a policy will not only provide both the means and stimuli for agricultural investment, thus raising both quality and quantity of agricultural output, but will also serve as a stimulus for resource-based industrial development by widening the internal market. Also, selective support for such branches against foreign competition, seems to be more than justified in view of the dynamic gains which could be expected.

As was shown, the main bottleneck in sub-branches of food processing was not always in the low level or quality of supply. Investments in infrastructure to overcome regional differences in supply and demand (transportation, storage, preservation, etc.) of agricultural products should therefore have highest priority.

The profitability of industrial activities is not only decreased by supply side problems, but also by inefficiencies in production resulting from deficiencies in management, organization, marketing etc. These deficiencies can be partly attributed to the scarcity of the productive factor management in a country belonging to the least developed group. If this were the only explanation, neither significant improvements in the short or even medium term could be expected, nor would there be much scope for development strategies and policies to improve the situation in the years ahead. Fortunately, Somalia's stage of development is only a partial explanation, the other part being subject to government strategies and policies.

What this brings into focus is the role, the performance and the weight of public enterprises in the Somali economy, an overview of which is given in Table 20. As can be seen, in the mid-seventies the weight of public enterprises in Somalia's manufacturing sector increased, although public enterprises made up merely 18 per cent of all enterprises in 1979. A look at

the employment, output and value added figures shows, however, that public enterprises constituted the very core of Somalia's manufacturing sector, leaving only very small scale activities to the private sector.

Table 20: The weight of public enterprises in Somalia's manufacturing sector[1/]

(Values in millions of Somali Shillings)

	1974	1975	1976	1977	1978	1979
Number of Establishments (No.)	390	299	265	272	277	258
Public	46	46	47	48	53	47
Private	344	253	218	224	224	211
Public Share	12%	15%	18%	18%	19%	18%
Employment (No.)	10344	11445	11542	12324	12482	12863
Public	5842	7401	8265	9557	9735	9970
Private	4502	4044	3277	2767	2747	2893
Public Share	56%	65%	72%	78%	78%	78%
Gross Output	350.0	405.1	489.8	574.5	536.4	882.2
Public	248.2	312.9	396.2	481.6	414.2	712.5
Private	101.8	92.2	93.6	92.9	122.2	169.7
Public Share	71%	77%	81%	84%	77%	81%
Value Added	118.8	138.4	209.8	281.1	268.2	283.5
Public	84.6	110.0	178.8	249.9	215.9	220.6
Private	34.2	28.4	31.0	31.2	52.3	62.9
Public Share	71%	79%	85%	89%	80%	78%
Wages/Salaries	54.0	52.3	62.2	72.1	85.6	98.7
Public	33.4	42.4	52.5	64.3	73.8	85.6
Private	10.6	9.9	9.7	7.8	11.8	13.1
Public Share	62%	81%	84%	89%	86%	87%
Gross Fixed Capital Formation	30.2	67.4	127.8	102.7	91.8	85.0
Public	23.2	63.6	126.7	97.1	87.9	65.7
Private	7.0	3.8	1.1	5.6	3.9	19.3
Public Share	77%	94%	99%	95%	96%	77%
Gross Output per Employee (So.Sh'000)						
Public	42.5	42.3	47.9	50.4	42.5	71.5
Private	22.6	22.8	28.6	33.6	44.5	58.7
Wages and Salaries as % of Value Added						
Public	39.5	38.5	29.4	13.4	34.2	38.8
Private	31.0	34.9	31.3	25.0	22.6	20.8
Value Added as % of Gross Output						
Public	34.1	35.2	45.1	51.9	52.1	31.0
Private	33.6	30.8	33.3	33.7	42.8	37.1

Source: Ministry of National Planning, Industrial Production Survey, various issues.

1/ Only enterprises with 5 or more employees.

A better idea of the government's development strategy, as manifested in the growth pattern of public industry, and of the pattern of structural transformation effected by these policies can be obtained by referring back to tables 16 and 17 (c.f. pages 38 and 44). Several observations can be made.

- First, in four out of six "relatively advanced" sectors (Table 17) the public share in gross output was very low and clearly below the average share of the private sector in manufacturing gross output (19 per cent). Correspondingly, in all three "average" sectors analyzed in Table 17 the private sector's share was above average. It follows that government policies by means of public investment did have a decisive influence on the pattern of industrial growth in Somalia in the past. The sectors on which the government's emphasis was placed were developed to levels above the average level of development of such sectors in comparable countries.

- Second, comparing the percentage of manufacturing employment with the share in wages and salaries gives an idea of the labour productivity, and thus, the capital intensity of the respective sectors. Sectors with a wage/salary share above their employment shares are characterized by an above average capital equipment.[19/] According to this, three of the sectors analyzed in Table 17 might be called "relatively capital intensive" (ISIC 321, 323/324, 356), three "relatively labour intensive" (ISIC 332, 352, 390). Correlating this finding with the figures on the share of the private sector in gross output, it is clear that the industrial growth promoted by the Somali authorities was clearly biased towards the more capital using branches, whereas wages, labour productivity and capital intensity were below average in the branches with greater private engagement.

These conclusions, however, should be regarded as tentative. Wages in public sector enterprises usually are not fixed according to market criteria. Therefore, higher wages in publicly dominated branches may not be fully attributable to higher labour productivity resulting from greater use of capital.

To the extent that capital intensity and productivity can be explained by this, however, higher labour productivity in public enterprises resulting from greater use of capital should not be confounded with greater efficiency. In fact, observations of a World Bank mission indicated that labour productivity in public enterprises was not as high as could be expected from the available capital equipment.[20/] The reason is that many public enterprises were found to be heavily overstaffed. A reduction of the number of employees in such case would contribute to raising the efficiency and profitability of existing public enterprises. Such a policy would have to be accompanied by policies favourable to the growth of the private sector in order to create new employment opportunities for the released labour force.

Elimination of overstaffing, however, is a necessary, but not a sufficient condition for improving the efficiency of public enterprises in Somalia. Measures should be taken to give straight forward criteria of economic efficiency good in the total of objectives pursued by public enterprises. Enterprise managament should be given more autonomy from central planning in order to take the necessary steps into this direction. These would also involve an improvement of the system of incentives for the labour force. This would mean linking together and equating individual performance, responsibility, productivity and remuneration.

4.3. Measures to Promote the Creation of New Industrial Capacities

Possibilities to develop new industrial capacities were indicated in the preceding chapter, both at the branch and at the sub-branch level. In general, the opportunities appear to be more promising at the sub-branch level, i.e., to diversify the industrial structure of those existing branches where Somalia enjoys comparative advantages.

Many of the opportunities indicated, however, do not require large scale production in big, highly mechanized enterprises. An industrial base for the extension of such activities is already existent with many small scale, private enterprises, e.g. in sub-branches of the food and leather procesing branches. Industrial development using this basis should be promoted. This growth path would be highly efficient in the use of available resources and

additionally it would not put heavy demands upon the government budget. Creating a favourable legal and policy framework for the growth of such activities would be one of the almost "costless" (in terms of public spending) promotional activities which are urgently required in the present stabilization period. The lack of such a framework may well explain the relative "lagging" of branches or sub-branches. Certain activities were less suitable for large-scale public investment, whereas the relatively less favourable environment for private small- to medium-scale industries was a limiting factor to private initiative.[21/]

Measures aiming into this direction would comprise of a reduction of direct public control over investment decisions in the private sector; increasing the capacity of the Somali Development Bank for dealing with private sector activities in order to provide the funds required for these investment decisions; a greater reliance on market forces in the pricing system in order to raise incentives for producers and to bring the structure of prices closer to the opportunity costs of goods, i.e. their prices on the world market; strengthening and extension of the organizational structure in the system of public administration which deals with and promotes private sector activities.

A greater scope for more direct government involvement remains in the industries dealing with minerals. Activities to obtain a detailed picture of Somalia's mineral resource base should be continued. In each case of discovery of deposits large enough to justify investments for extraction the question of further processing in Somalia should be very carefully analyzed with feasibility and cost-benefit analysis. Generally, the capital investment required for the processing of minerals is very high, in fact, too high for a country at Somalia's stage of development. Therefore, investment in branches extracting minerals for export in (relatively) unprocessed form might be the best alternative at the present time. Such a strategy would increase foreign exchange earnings from exports and permit at the same time the allocation of scarce available investment sources to activities which increase the supply of renewable resources, thus providing the basis for a self-reliant, well founded path of industrial development.

4.4. An Appraisal of the Five-Year Development Programme for the Industrial Sector, 1982 - 1986

Finally, this chapter shall conclude this report with some remarks and observations concerning Somalia's Five-Year Development Programme in the light of the findings of this study.

The industrial policies and strategies to be implemented are stated in the Five-Year Development Programme as follows:

" - To establish industrial infrastructure necessary and vital for the development and growth of industries;
- To develop, encourage and promote industries based on indigineous raw materials with specific emphasis on agro-based industries;
- To encourage development and establishment of industries directly or indirectly contributing to and helping in exploitation, acceleration and development of natural resources and agricultural production and giving rise to new industries;
- To establish industries to process materials presently exported in raw or semi-processed form to yield greater value added;
- To encourage and promote labour-intensive industries to provide employment to work force;
- To consolidate the existing industrial units and put them on sound footing by balancing and modernisation to achieve optimum utilization and improve efficiency;
- To spread the industries to regions for balanced regional development by establishing smaller units of moderate capacities based on indigineous materials;
- To encourage and assist private investors to establish small-scale industries based on local raw materials;
- To establish better co-ordination with other ministries, agencies, co-operatives and private investors to achieve optimum benefit and utilization of investments for industrialization."[22/]

This catalogue of objectives, if pursued with policies trying to keep a balance between the various objectives, could set the framework for policies suitable to accelerate Somalia's industrial development. These policies should strengthen of the country's internal driving forces of economic growth, while at the same time utilizing the growth potential inherent in an integration of Somalia's economy into the world market. Unfortunately, this balance between the different objectives is not secured by the actual allocation of investment funds covered in the Five-Year Development Programme. This can be demonstrated by Table 21. The Table covers the allocation of public investment dealt with in the Five-Year Development Programme.

Evaluating it with reference to the analysis done in chapter 3.1. of this report, 6 out of the 11 projects promote branches with an average degree of specialization, 4 refer to lagging sectors and one project is part of a leading sector.[23/] How does this intended broadening of Somalia's industrial base compare to the country's resource base and comparative advantage?

To begin with the "leading" branch to be promoted, the erection of the (export-oriented) Kismayo Shoe Factory is fully in line with the findings and recommendations given in section 3.2. of this report. It utilizes the country's agricultural resource base, provides backward linkages to the primary sector and is geared to the highly absorptive export markets in the region. As shoe manufacturing is additionally a labour-intensive industry, the project makes efficient use of the committed resources in terms of employment creation. Thus, it serves several of the Five-Year Development Programme's objectives at the same time (use of indigenous materials, processing of previously exported raw materials, increase of foreign exchange receipts, employment creation).

Of the six "average" sectors, four (Juba Sugar, Suai Sugar, Ballad Irrigation and Milk Plant Mogadiscio) correspond to the recommendations given previously in this study concerning the promotion of agro-based industries. In fact, two of them have important project components aiming directly at increasing agricultural supplies, whereas the third one (Balad Irrigation) is

Table 21 Analysis of Projects Covered in the Five Year Development Programme, 1982-1986

Branch	Branch Status[1]	Capital Investment[2] (million So. Sh.)	Share of total (percentage)	New Jobs Created	Share of Total	Capital Investment per Newly Created Job	Linkages: backward	Linkages: forward	Corresponding Resource Base
New Investment									
Urea Plant	lg	445.600	18.0	100	2.4	4.456	X		
Kismano Shoe Factory	ld	21.686	0.9	200	4.7	0.108	X		X
Mini Steel and Rolling Mill	lg	41.952	1.7	400	9.4	0.105		X	X
On-Going Projects									
Juba Sugar	av	1,216.000	49.1	3,053	71.9	0.398	X	X	
- agricultural share		469.760	19.0	2,845	67.0	0.0004			
- industrial share		746.240	30.1	615	14.5	1.213	X	X	X
Berbera Cement	av	448.184	18.1	214	5.0	2.094	X		X
Gypsum Plant	av	3.500	0.1	95	2.2	0.037	X	X	X
Balad Irrigation Scheme	(av)	84.000	3.4					X	X
Modernization and Expansion Projects									
Milk Plant Mogadiscio	av	30.460	1.2	146	3.4	0.209	X		X
Foundry and Mechanical Workshop	lg	4.500	0.2	37	0.9	0.122			
SNAI Sugar Factory	av	176.876	7.1	-		-	X	X	X
Jowhar									
- agricultural share		111.773	4.5						
- industrial share		65.103	2.6						
Aluminium Utensile Factory	lg	4.800	0.2						
Total		2,477.558		4,245					

Source of data: Somali Democratic Republic, Ministry of Industry, "Five Year Development Programme 1982-1986, Industrial Sector", Mogadiscio, February 1981.

1) "ld" = leading branch
"av" = average branch
"lg" = lagging branch

2) The figures on capital investment and newly created jobs refer to the respective project totals, i.e., in the figures referring to on-going projects" also investment outlays and jobs created prior to the 1982-1986 plan period were considered.

fully designed for that purpose. The fourth project (Milk Plant Mogadiscio) is planned to be integrated with the establishment of dairy farms, and collection centres to secure regular supplies. These efforts are in accordance with the recommendations given previously in this study. Therefore, the various components have backward and forward linkages and correspond to efforts to initiate mutually re-inforcing processes of development. The other two projects of the "average" sector group (Berbera Cement and Gypsum Plant) are also linked, as the planned gypsum plant would provide inputs for the projected cement factory. Both projects would utilize domestically available raw materials, which, however, is not a sufficient condition for making the erection of such industries advisable, as was emphasized in section 3.3.2. of this report. This point will be taken up again in the next paragraphs.

Finally turning to the four "lagging" sectors, the three main reasons for the lagging of a branch given in section 3.4. were:

- comparative disadvantages;
- less favourable environment for privat initiative; and/or
- lack of essential resources.

Two of the projects (Foundry and Mechanical Workshop, Aluminium Utensils Factory) are aiming at compensating either the lack of private or of Government initiative. Both projects refer to the modernization and expansion of already existing plants and account all together for only 0.4 per cent of the planned investment.

The other two projects create new industrial capacity, both in branches which one would not typically expect to rank very high in the priority list of a country with relatively low income. In the case of the "Mini Steel and Rolling Mill", however, the figures shown in the Five-Year Development Programme point to the planned use of rather appropriate technology, as the capital investment per newly created job is not extraordinarily high.

Quite a different conclusion has to be drawn regarding the planned Urea Plant. With a share of 18 per cent of total planned investment, it creates a meagre 2.4 per cent of newly created jobs. Restricting the analysis to the new

investment, 87.5 per cent of all new investment create only 14.3 per cent of the jobs provided in new enterprises. Even if Somalia were abundant of petroleum deposits[24/] (the plant would use heavy naphta as feedstock), this allocation of resources cannot be justified by economic criteria, not even in view of its backward linkages with the existing petroleum refinery in Mogadiscio. The justification given in the Five-Year Development Programme - producing fertilizer is in line with the Government's efforts to boost up agricultural production - neglects the possibility of using imported fertilizer. The mere fact that a product is imported does not by itself justify the allocation of scarce investment sources to industries serving to substitute these imports. Instead, efforts to substitute some of the many imported goods through domestic production should be concentrated on activities where this could be done most efficiently, that is, by taking into account a country's comparative advantage and resource endowment. The Urea Plant certainly would not be one of such projects.

Additionally, the planning of new projects should always give high priority to the creation of new employment in order to widen the size of the domestic market, thus paving the ground for self-reliant development. Taking, for example, the average investment/job ratio of the integrated agricultural/industrial project "Juba Sugar" as a yardstick, the amount of investment intended for the Urea Plant would create 3,055 new jobs in such an agro-industrial project, compared to merely 100 in the Urea Plant. The application of cost-benefit analysis in the appraisal of projects, taking into account objectives such as employment creation and aspects of socio-economic development through the use of shadow prices, is highly beneficial, and thus, recommended. The fact that in the Five-Year Development Programme projects are evaluated in terms of "profits" and "returns" indicates that the Ministry of Industry should reform its evaluation procedure to include social cost-benefit analysis.

To sum up, the projects covered in the Five-Year Development Programme are largely, in terms of the number of projects, in line with the country's comparative advantage and resource endowment. This basically positive picture

changes, however, if the projects are weighted by their share in total investment, and especially when the analysis is restricted to the new investment. One big project, the Urea Plant, accounting for 18 per cent of total and for 87.5 per cent of new investment, does not seem to make the best use of the country's scarce capital resources. It should be seriously analysed whether a re-allocation of funds assigned to the Urea Plant to the promotion of small-scale, private industrial enterprises (for which in the Plan only 35,500 million So.Sh. are provided, a mere 8 per cent of the investment for the Urea Plant and 1.4 per cent of total planned industrial investment) would not contribute more to employment creation, foreign exchange earning/saving and to the country's overall, self-reliant socio-economic development.

NOTES

1/ IBRD Report No. 3284-SO. During discussion of the report, Somali authorities stated that the population in 1975 and 1980 was 4.5 million and 5.0 million respectively. According to them, 120,000 households accounting for 700-800,000 people, were under recorded during the 1975 census. This is now being rectified with the help of UN demographers.

2/ l.f. Table 1.

3/ The World Bank, World Development Report 1982, Washington, D.C., 1982, p. 136.

4/ c.f. The World Bank, 1982, op. cit., p. 132.

5/ It should be noted at this point that the sectoral shares and growth rates presented in this chapter, having been taken from the UNIDO data base, differ in part considerably from the figures derived by the World Bank, as e.g. in The World Bank, 1982, op. cit., 1.134. With the information available to UNIDO it was not possible to reconcile these figures.

6/ c.f. The World Bank, 1982, op. cit., p. 136.

7/ In agriculture, however, is the biggest difference to the World Bank figures, which amounts to a 60 per cent share of agriculture.

8/ For a detailed description of the estimation procedure see United Nations Industrial Development Organization, Handbook of Industrial Statistics, New York 1982, pp. 27-29 and pp. 52-53.

9/ Data supplied by the World Bank.

10/ Source: Central Bank of Somalia, Annual Reports.

11/ Data supplied by the World Bank.

12/ Source: Central Bank of Somalia, Annual Reports.

13/ Source: Ministry of Planning, Central Statistical Department, Foreign Trade Returns and Statistical Abstract. The data on which he shares were calculated do not include franco valuta imports.

14/ These aspects will be dealt with in greater detail in Chapter IV.

15/ United Nations Industrial Development Organization, Handbook of Industrial Statistics, New York, 1982.

16/ For a more detailed description of the estimation procedure see UNIDO, Handbook of Industrial Statistics, pp. 45-54.

17/ In order to correct for the differences between branches in the degrees of dispersion of the observed values around the estimated regression graph, values of RS = 1 were considered to indicate a relative specialization only, if the absolute difference between the estimated and the observed value was larger than one standard deviation; c.f. UNIDO, Handbook of Industrial Statistics, p. 53.

18/ c.f. table

19/ This rests, of course, on the assumption of labour productivity being reflected in wages and salaries. It also neglects human capital; this, however, would not bias the analysis to the extent of complementarity between physical and human capital, an assumption which is supported by empirical evidence.

20/ The World Bank, Somalia - Policy Measures for Rehabilitation and Growth, Report No. 4081-So. May 6, 1983, p. 52.

21/ C.f page 56 of this report.

22/ Somali Democratic Republic, Ministry of Industry, "Five-Year Development Programme 1982-1986, Industrial Sector", Mogadiscio, February 1981. Underlinings by the author of this report.

23/ The Ballad Irregation Scheme was classified as (av), as its purpose is to provide/increase the agricultural output for the "average" branches "food processing" and "textiles".

24/ In fact, Somalia is dependent on oil imports.